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ORIGINAL ARTICLES.

TUBE-CASTS AND THEIR DIAGNOSTIC VALUE.[1]

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THE study of renal tube-casts is not new. Since Henle, in 1842, first comprehended and announced their importance, their relation to renal diagnosis and pathology has been generally admitted.

The exhaustive essay of Bartels, in Ziemssen's *Cyclopedia*, is an excellent record of our knowledge of casts up to that time; but I think something more may now be added.

For some years past I have had occasion to study tube-casts frequently and consecutively for purposes of diagnosis, and, while doing so, have, insensibly perhaps, arrived at certain results and reached certain conclusions which it is my purpose to set forth in this paper. I do not claim any new discoveries, but hope my paper will add something of system and definiteness to the study of casts and something of certainty to the diagnostic conclusions to be drawn therefrom.

Concerning the origin of tube-casts, I think they are clearly of two distinct kinds, each having a different origin, and each indicative of a different pathologic process. First, we have the mucous or more properly mucin casts—and I do not think that casts of this variety have received the consideration to which their importance entitles them. Mucin casts, I would divide into two groups: (*a*) Simple mucin casts, without crystalline or cellular elements; (*b*) Casts that include saline or cellular elements acquired during their formation in the kidney. This division has an important bearing on diagnosis, as I shall endeavor to show presently.

Secondly, we have the true fibrinous casts, or those that have long been recognized and variously classified by different writers; and these may be divided into four groups: (*a*) The hyaline or "structureless" casts, which contain no formative elements whatever. (*b*) Blood-bearing casts; (*c*) Cell-bearing casts; (*d*) Fatty casts.

This classification may be reduced to tabular form, for purposes of systematic study, as follows:

CLASSIFICATION OF TUBE-CASTS.

Class I. Mucin Casts.
- (*a*) Simple mucin casts, entirely destitute of formative elements.
- (*b*) Mixed mucin casts, or those that include crystalline or cellular elements, acquired during their formation in the tube.

Class II. Fibrinous Casts.
- (*a*) Hyaline or structureless casts.
- (*b*) Blood-bearing casts.
- (*c*) Cell-bearing casts.
- (*a*) Fatty casts.

Of course, each group may be divided into subgroups, but such wire-drawn distinctions serve no good practical purpose, while they are likely to confuse and perplex the student.

Turning now to the first class, the *mucin cast*, let us consider its origin and pathologic import. It is certainly not the product of an exudate, and is therefore not directly derived from the bloodvessels. This fact separates it at once and forever, as regards origin and pathology, from the fibrinous cast, a point to which I shall allude again presently.

It is undoubtedly true that the mucin cast is formed within the renal tubules, and from material furnished by the tubal epithelium, most likely by the epithelium of the convoluted tubes. Under certain circumstances, the epithelial cells seem to undergo a change equivalent to the "mucoid degeneration" of Ziegler, the protoplasm of the cell being transformed into a mucoid substance, which is afterward cast into the lumen of the tubule, there to aggregate itself with the similar product of neighboring cells, thus forming the simple "mucin cast" or the long, wavy string of mucin so often seen in urine. The mucin cast is the product of a catarrhal nephritis, a pathologic state to be sharply differentiated from exudative nephritis, with relation to origin, treatment and results.

I have contended for more than ten years that "catarrhal nephritis" ought to have a distinct recognition in our systematic nosology, simply because it is a distinct disease, frequently existing for years and having its own characteristic symptoms and course. The simple mucin cast is the characteristic morphologic product of this disease and establishes its differential diagnosis. Frequently, it is the only reliable indication of the existence thereof, since catarrhal nephritis is not generally accompa-

[1] Read before the Association of American Physicians, Washington, May, 1892.

nied by subjective symptoms of any marked significance.

Together with the mucin cast are frequently found tubal epithelium, leukocytes, and urinary salts, but these have no necessary relation to the pathologic condition indicated by the mucin cast; it alone establishes the diagnosis of catarrhal nephritis.

The "mixed" mucin cast is the "simple" mucin cast plus whatever crystalline or cellular elements may chance to be present. Clinical experience shows that the elements most likely to be present are leukocytes, or crystals of lithic acid or calcium oxalate. The presence of the first indicates that there exists a catarrhal condition of sufficient intensity to induce rapid multiplication of the nuclei of the epithelium, which by reason of the "mucoid" degeneration of the protoplasm of these cells are set "free" and are hence easily enclosed in the mucin cast during its formation.

It may be said that these leukocytes escape from the blood by diapedesis, but if that were true we should have hyaline (fibrinous) casts, instead of mucin casts, since we cannot conceive of a hyperemia sufficient to produce diapedesis without at the same time inviting exudation.

Of course, if hyaline casts *are* present, exudation is proved, and the diagnosis of exudative inflammation is thereby established. It is not at all unlikely that hyaline and mucin casts may be present together, which would show that the case was in a transition state from catarrhal to exudative nephritis, or *vice versa*, as I have seen in many instances; and it is in just such cases as these that familiarity with the appearance of tube-casts, and their diagnostic pointings, is so necessary, since it is impossible to establish a refined diagnosis from any other standpoint.

When the mucin cast includes crystals of lithic acid, oxalates, or phosphates, it is clearly correct to assume that these crystals were deposited in the renal tubules and that they point to a diathetic condition which determined their formation.

From a diagnostic point of view, it is important to note that the crystals are *within* the cast and not adherent to its *surface;* because it clearly warrants the conclusion that they were formed in the renal tubule and not in the pelvis or bladder.

This being the case, we can readily account for the renal irritation that has led to the renal catarrh and consequent renal inadequacy, so common when these diathetic factors are present. The diagnostic value and the importance of recognizing these crystals and of determining their nature and location is thus clearly indicated.

In the year 1874 and again in 1879 and 1880 the late Dr. Mahomed drew attention to "high arterial tension" as a symptom prophetic of chronic interstitial nephritis, and described what he designated as the "pre-albuminuric stage" of chronic nephritis. His writings attracted wide and well-merited attention, but his untimely death occurred before he had completed his researches and experiments. It was his belief that high tension or irritable heart, with contracted and resistant bloodvessels, preceded albuminuria, sometimes for months or even years. It was his further belief that the approach of renal cirrhosis might be predicted by carefully estimating the degree and constancy of cardio-vascular tension, by means of consecutive sphygmographic tracings.

A broader study of this subject has developed the fact that this peculiar condition is not certainly present, except in cases of well-marked lithemia, and that even then, as Dr. Grainger Stewart has observed, some degree of cirrhosis usually precedes the symptom.

Increased or abnormal vascular tension, then, can hardly be regarded as a prophetic or prodromic symptom of renal cirrhosis, although its value as regards differential diagnosis cannot be denied.

I believe, however, that the presence of the mucin cast is of far greater diagnostic value than is high arterial tension under any circumstances.

In the first place, I am satisfied that the great, in fact, the overwhelming, majority of cases of interstitial nephritis are preceded by a long period of faulty digestion and mal-assimilation. This is certainly the case in the vicinity of Chicago, where my observations are chiefly made. This leads to overworked and irritated kidneys, as Dr. George Johnson first pointed out; but more than that, it leads to the development of renal catarrh, as Dr. Johnson did *not* point out.

Vitiated or abnormal urine produces a catarrhal irritation of the kidney, just as vitiated or abnormal ingesta produce a catarrhal irritation of the stomach. The next event is the appearance of the mucin cast long before any recognizable renal lesion occurs, and long before arterio-capillary tension is present in such degree as to be detected, except by the most expert and experienced sphygmographist. In fact, arterio-capillary tension, as a practical every-day symptom for the guidance of the ordinary practitioner, does not yet possess the value that Mahomed, as well as Gull and Sutton, predicted for it. Its recognition presupposes the possession of instruments and technical knowledge not generally possessed by those most likely to encounter the cases to which they are applicable. Moreover, as I have already said, the symptom in question does not usually precede the lesion of which it is an indication. Again, vascular tension does nothing more than suggest a possible diathetic antecedent; whereas it is all-important, if such a complication be present,

that it be promptly recognized and appropiately treated.

I claim for the mucin cast a position of preëminent importance in the early diagnosis of interstitial nephritis; more than this, I claim that the appearance of the mucin cast is a prophecy of that change which is only too sure to follow chronic catarrhal nephritis.

Moreover, the cause or "diathesis" that preceded and led to the catarrhal kidney may generally be detected by the microscopic study of the urinary sediment that falls with the casts, and as this "diathesis" includes or rather *is* the essential pathologic factor in a given case, its early recognition is most important. All this can be done, has been done, is daily being done, by him who is most concerned in all our researches and experiments, namely, the general practitioner. What seems to me a consideration of no small importance is the fact that the recognition of the mucin cast and the crystals or granules of lithic acid are not matters of opinion or guess-work, or questions of comparative judgment, but simply questions of fact and of fact only; these substances are or are not present, and the conclusion is obvious. The degree of arterio-vascular tension in a given case is, however, a matter of comparative judgment at best, and in every case is a very variable factor, present to-day and absent to-morrow.

It is proper, although perhaps needless, to add that the foregoing statements are based on a long and cumulative experience, upon long and careful study of many cases, some of which are still under observation, and are in no proper sense theoretic or conjectural.

I will now ask your attention briefly to the second class, namely, the true *fibrinous casts*. The presence of the fibrinous cast in urine is abundant proof that sufficient hyperemia exists, or has existed, in the kidney to produce exudation of the fibrin factors, and most probably diapedesis. It is proof, therefore, of the presence of "exudative" inflammation, instead of "catarrhal" inflammation, which I have just considered. I regard it as very essential that this distinction be kept in mind, since it has much to do with the question of treatment, and is all-important in its relation to prognosis. In both forms of disease albumin may be present—present at one time, and absent at another. In the early stage of exudative (interstitial) nephritis, the quantity may be so small as to require very careful testing to prove its presence. In catarrhal nephritis the amount is always very slight, many times amounting to no more than a trace. As a diagnostic symptom, therefore, albuminuria has very little value, and no uniform value. Tube-casts, however, have a positive as well as uniform diagnostic value, provided their interpretation is understood. One of the most important points settled by them is the question whether, in a given case, we are dealing with catarrhal or exudative inflammation.

The *hyaline cast*—the first variety of the second class—is the simplest and most innocent form produced by exudative nephritis. It is so small and so translucent that it frequently escapes detection, unless the examination happens to be made by an expert microscopist. Its diagnostic value depends mainly upon its frequency and upon its form or symmetry. If only an occasional hyaline cast is found it goes to show that exudation is very slight; that it is in its incipiency, or has well-nigh ceased—a question that can easily be decided by reference to other symptoms that do not come within the scope of this paper. If many are present, exudation is still going on actively. In my own examinations I lay great stress upon the form of the cast. If it is smooth and symmetrical, or free from "twists" or distortions, it seems to me to indicate that it was formed in a tube not yet disturbed by the encroachment of pathologic connective tissue; but if the cast is not smooth and regular on its surface, and if it shows angularities, as though it had been violently bent or twisted, I am equally confident that the cirrhotic process has already made considerable progress. I regard this a very important diagnostic indication, and one that has helped me very greatly in seeking grounds upon which to found a reasonable prognosis. It will save repetition if I say now and here, that the same observations with reference to symmetry and form apply in equal degree to the varieties of casts that are yet to be mentioned.

Blood-bearing casts indicate a hyperemia sufficient to cause hemorrhage into the renal tubles, although it may be very slight indeed. Hence, blood casts are commonly regarded as proof of acute nephritis, and of that only. In every such case, however, it should be borne in mind that while the blood cast may be the immediate result of an acute lesion, a long-standing chronic lesion may have preceded it, and careful search for other forms of casts should be made. In other words, a prognosis founded upon blood casts alone is quite likely to disappoint the expectations of physician and patient. In every case of apparent acute nephritis careful search should be made for casts indicative of pre-existing chronic disease, and it is not wise to prognosticate favorably until several consecutive examinations have failed to disclose the presence of the casts of chronic nephritis. I have rarely encountered cases of so-called "idiopathic" acute nephritis that were not preceded by undoubted chronic nephritis.

Cell-bearing casts, the "epithelial casts" of authors, are so common, and are generally so well

understood, that little need be said about them, except to emphasize some two or three points. Care should be taken to determine whether the cells adhere to the surface of the cast or are incorporated therein. In the former case they may not be the result of pathologic exuviation, but they may represent only cells wasted by wear and tear, whose escape has been anticipated slightly by the friction of the cast as it passes down the tubule. In the latter case they must have fallen off from purely pathologic causes. The shape or form of cell-casts is as significant as that of hyaline casts. Casts from a cirrhotic kidney are likely to be twisted and distorted; casts from a case of tubal nephritis are likely to be straight, symmetrical, and rather large. In either case the cells may be cloudy, granular, or filled with glistening droplets of fat, thus indicating with great precision the stage or condition of the case under examination, as the more advanced the process of fatty degeneration of the cells the more advanced the destruction of the kidney in which they were produced.

Fatty casts are evidence of the completion of the destructive process of which the hyaline cast marks the beginning. They are more or less numerous as the case is more or less advanced in its ultimate pathologic history. They are more or less eroded and irregular as the tubule is more or less denuded of its epithelial lining, and otherwise roughened in its lumen. They are more or less twisted and distorted as the tubule is more or less pulled out of shape and symmetery by the encroachments and contractions of the pathologic connective tissue. Thus they indicate the stage as well as the form or type of the disease of which they are the product. With fatty casts may be mingled hyaline and epithelial casts; in fact, the three forms are frequently found together. The stage of the disease in a given case would be pretty accurately indicated by the predominating type of casts; but it would be evident that some minor portion of one or both kidneys was either more or less advanced in the pathologic change than the chief portion of these organs.

I have not regarded the *waxy* or *amyloid* cast as entitled to a separate grouping, because it is only an accidental variety of fibrinous cast, presenting no inherent peculiarities of structure, and therefore indicating no pathologic changes in the kidney that are associated with its presence. Waxy casts are almost invariably hyaline or structureless; if they happen to contain the peculiar waxy or amyloid material implied by their name the iodine test will promptly demonstrate the fact, and thus establish the diagnosis of waxy kidney; but clinical experience shows that the amyloid disease can seldom be differentiated in this manner. In conclusion, permit me to add that I have long been persuaded that the course of a given case of acute or chronic nephritis, the type of the disease, the sequence and nature of the pathologic events taking place in the kidney, and the grounds for a reasonably positive prognosis, may be evolved from an intelligent and careful consecutive study of the tube-casts alone. Other factors of course enter into the diagnosis, and their value and importance I do not question, but I believe, with Formad, of Philadelphia, that the tube-cast conveys more actual and accurate information to the practiced microscopist than any or all other symptoms or signs.

ASEPSIS AND ANTISEPSIS AS APPLIED IN THE LYING-IN CHAMBER.[1]

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THE subject that forms the title of this paper has been frequently discussed in societies and medical journals during the past ten years, but definite and fixed rules of action have not been formulated or agreed upon; at least, there has been no unanimity in the profession as to when these methods should be adopted, how far they should be carried on, and when they should cease. It will be my object in the following paragraphs to briefly set forth my own views thereon, and I invite the most searching criticism from the members.

Prior to the introduction of antisepsis, with reference to the practice of surgery, by Lister, we may say that practically nothing had been done to eliminate septic influences from the parturient chamber. The practice of surgery has been almost revolutionized by the teachings of Lister, even though surgeons to-day do not adhere in any considerable number to the precepts that Lister originally laid down; nay, more, even Lister himself has departed from many of his original dicta. It remains, however, and ever will remain a fact, that no man has done more to improve methods and to bring success to the surgical art than this great modern apostle of surgical cleanliness. No sooner had the benefits of his teachings been tested in surgical cases than obstetricians began the application of similar methods in the lying-in chamber. It is easy to understand how advocates of new methods of procedure may readily become extremists, and hence cause harmfulness by their zeal; so, very soon we found the application of antiseptic methods in the lying-in chamber combated by very eminent men.

However much men may disagree as to the necessity for the employment of a particular agent, or as

[1] Read at the Forty-third Annual Meeting of the American Medical Association, in Detroit, June, 1892, and at the Semi-annual Meeting of the Medical Society of the County of Erie, June 14, 1892.

to the methods of its application, all must admit that it would be better if every parturient woman could be made absolutely clean, and all septic germ-influences excluded from the puerperal chamber. How best to approximate, if not to attain, this ideal is a problem that confronts every obstetrician to-day.

Here are a few simple propositions about which there can be, or at least ought to be, no dispute: 1. Let us begin by making the patient as nearly clean as it is possible for soap and water to accomplish. 2. Let her, prior to the beginning of labor, have an immersion-bath daily for several days, and with the first manifestations of pains let her abdomen and genitalia be rendered absolutely aseptic by the further application of germicides in solution, adequate to accomplish the desired end. 3. Let her have a warm vaginal douche, rendered aseptic. 4. Let the lower bowel be thoroughly evacuated by copious lavements of hot water prior to the vaginal bath. 5. Let her bedding be made as pure and clean as careful laundrying can make it. 6. Let her clothing be made equally clean in like manner. 7. Let there be a number of clean bichloride napkins placed in readiness for use. If all of these injunctions are rigidly enforced we have done much to lay the foundation for a physiologic labor.

After all this careful preparation of the patient and her surroundings we have not, however, done enough. The physician and all the attendants must be rendered as scrupulously clean and aseptic as the patient herself, else all the previous preparation has been in vain. The nurse must be a woman of absolute cleanliness, both in the care of her person and her clothing, and she must be especially trained in the habit of keeping her hands clean. The physician must be trained in all the details of aseptic and antiseptic principles, and must enforce his rules as rigidly upon himself as he does upon his patient and her nurse. He must not approach the genitalia with soiled fingers or with unclean apparel. Let him make his primary examination as carefully and as deliberately as possible, to ascertain as to the relations of the woman and the fetus, and then let him refrain from further examination until some special reason arises to make its repetition necessary or imperative. Any repetition of the examination must be practised with the same carefulness that was insisted upon the first time, and so on to the end. If these simple rules are carried out in a normal labor it would seem as though every avenue for the entrance of pathogenic germs had been guarded. After delivery all lesions of the genital tract should be sutured, and a toilet made of the genitalia under the supervision of the physician himself. These are some of the simplest rules that can be named with reference to the care of a case of labor, and who dare say that they should not be rigidly enforced?

My friend, who has an active practice in a rural district, will say that it is not possible to carry out even these simple rules and do justice to his other work that is pressing on all sides. My answer is, let him approximate thereunto as nearly as may be, and decline all obstetric service where a disposition exists on the part of the patient and her friends to ignore such careful directions as may be given them. I know a physician who absolutely declines to take an obstetric case unless he can have at least one or two months' supervision of the patient prior to labor. He will not accept a chance-call to such a case unless it be to relieve a brother practitioner who requests it. If all men would adopt such a rule we would soon find no difficulty in enforcing discipline in the parturient chamber, as well as in making adequate and ample preparations for the ordeal.

In spite, however, of all these precautions, and in their exercise with seemingly rigid care, septic fever will sometimes occur, and then we are often called upon to exercise the highest and most difficult part of our functions. Then comes the test of judgment and the demand for skill. With the temperature running gradually upward on the fourth or fifth day to 103° plus, and with a fetid discharge from the genital tract, can there be any reasonable doubt about the propriety of at once making efforts to render the uterus and vagina perfectly sweet and clean by the employment of intrauterine lavements? It would seem to me as illogical to neglect such a procedure as it would be to fail to remove the dressings and clean out the pus from a fetid surgical wound. Unless this intrauterine toilet be performed with great care, however, there is danger that it will fall short of accomplishing all that may confidently be expected of it when adequately and properly applied.

The latter proposition, namely, the method of performance of the intrauterine toilet, it seems to me is a question of grave importance. It is a delicate task—one that must be performed with the utmost precision and neatness, or else it had better not be done at all. In other words, it must be done with the same exactitude that any surgical procedure entails; let it be done by properly placing the woman on a table in the proper light, with a suitable gravity douche, containing sterilized water, within easy reach, and with all other careful preparations that would obtain in the performance of an intrapelvic or abdominal operation. This has been amply set forth by Dr. Lewis S. McMurtry, in a recent paper[1] and need not be further elaborated here. We often hear it said that even with the careful and judicious employmennt of the intrauterine lavement in the manner indicated it cannot overtake the germs that have infected

[1] Trans. Amer. Assoc. Obst. and Gyn., vol. iv, 1891.

or have been absorbed, and that, therefore, it will not accomplish the purpose sought. In my judgment, this is a specious attempt at reasoning. It may be true that the lavement cannot overtake such pathogenic germs as have already found entrance in the organism, but it can sweep out all colonies that remain unabsorbed, and thus cut off the septic supply. With the further absorption of these germs prevented, the patient will generally go on to easy cure, the exception being only in cases in which the method has been resorted to inadequately or after too much mischief has already been done. We are constantly told by the practitioner in the country that it is impossible to adopt all this precision and exactitude in the exigencies of daily practice. While it must be conceded that there is some truth in this statement, yet I confess that it seems to me an admission of weakness, of which to purge ourselves we must not hasten slowly. If a method is useful or necessary in the saving of health or life, no labor is too great and no caution is too exacting that will put it into process of execution or application. In this brief paper it has been my object to make a plea for greater exactitude on the part of the general practitioner in the employment of both asepsis and antisepsis in the practice of obstetrics.

We have all seen what can be done in the management of large maternities by the application of these principles. A distinguished member of this section has already, in a large maternity, obtained the unprecedentedly large percentage of over a thousand consecutive obstetric confinements without a death. This would have been impossible under the management in vogue twenty years ago. If it is competent to obtain such results in a building in which no other class of patients is received, it would seem to be quite reasonable to anticipate a like degree of perfection in the rural districts, where fresh air and good water are always at hand. What we require is a little more energy, a little more ambition, a little more determination to avail ourselves of the methods at easy command, to make the disease heretofore known as childbed fever one of the past opprobria of obstetric medicine.

To recapitulate, then, let me insist that the elementary precepts of the practice of modern midwifery entail the amplification of three or four principles. The first is that the parturient woman, whether of high or low degree, must be made absolutely clean in her person and surroundings; her room must be clean; her bed must be clean; and everything used during confinement must be free from taint or odor. This law must be insisted upon, even though the environment of the woman denies her luxuries—often even the bare necessities—of the lying-in chamber; but the great God of heaven has not denied her the luxury of fresh air and clean water.

The second principle involved applies with clearly cogent force to the *personnel* of the accoucheur, who must render himself clean with soap and water, supplemented by the free use of a nailbrush and a germicide solution. He must make no physical exploration of the genital tract until he is absolutely certain that he can carry no poison to his patient by such examination. The third principle involved is that the child should receive immediate attention as soon as it is born, so that there may be no danger of sepsis invading its eyes or other exposed parts. Ophthalmia neonatorum must be entirely blotted out, as it can be, provided due care is observed in relation to the management of the new-born. The fourth application of this principle applies to the nurse or other attendants upon the parturient woman. It, perhaps, requires more skill and tact to properly train a nurse to be absolutely clean in her work than it does to enforce the principle in all its other bearings. No nurse can be adequately so trained unless the trainer is himself scrupulously clean and expert with reference to all questions pertaining to the subject in hand.

These are a few practical thoughts that have come to mind, and have been hastily converted into language, without previous opportunity to elaborate the subject in such a manner as it deserves; but if this imperfect presentation of it will lead to a discussion that will be productive of some good its purpose will have been fully served.

If it should be remarked that I have said less of antisepsis than of asepsis, it is because I am of the opinion that the latter is of the greater importance, and, further, because I believe that if asepsis is adequately and amply practised there will be little necessity for the use of antiseptics in and about the parturient woman. My formula then would be: A rigid employment of asepsis prior to delivery, and an equally rigid employment of antisepsis subsequent to delivery, *provided*, there arise symptoms that render the latter necessary. If a rigid use of aseptic measures be made during the latter days of pregnancy, and during delivery, there will be little occasion, in a normal labor, to employ antisepsis afterward. Abnormal labors are outside of all rules, and each one must be managed according to its own necessities, not only with reference to essential details, but with reference to the minute and technical administration of antiseptic measures. For instance, in a normal labor there will be no occasion for the employment of vaginal lavements for forty-eight hours subsequently to delivery; whereas, in an abnormal labor it may not only be necessary to employ the vaginal douche immediately, but prompt intrauterine irrigation may be absolutely essential.

As a final thought, permit me to observe that with greater care given by the general practitioner in the remote portions of the country and away from the large centers, as well as in the populous cities, it is it is my opinion that so-called puerperal fever may be eliminated as a factor of constant menace in the parturient chamber, and that ophthalmia neonatorum may be absolutely and entirely prevented.

The mortality from pulmonary tuberculosis in a single year, in this country, is declared to be, in round numbers, 100,000. I have no doubt that if statistics could be collated on the subject it would be found that the mortality from childbed is considerably beyond that number; and, further, that a very large proportion of this mortality comes within the line of prevention.

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VISCERAL PHLEBOTOMY.[1]

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Pari passu with the recent advances made in scientific physiology and pathology have most marked changes and improvements taken place in the medical and surgical treatment of disease. Some of these have appeared startling by reason of their novelty; others have intimidated on account of their seeming temerity; many have been stigmatized as chimerical, while not a few have been actually condemned as being beyond the pale of rational therapeutics. Nevertheless, on better acquaintance, most of these have been found to be as replete with wisdom as they have proved to be pregnant with advantage to the healing art. Visceral phlebotomy, of which I am about to speak, may not untruthfully be said to belong to the latter class, for when it was first introduced by me to the profession in 1886,[2] in the form of hepatic phlebotomy, it was not only abused as a most dangerous, but stigmatized as a most unjustifiable operative procedure. Nevertheless, although only six years have glided away since its death-knell was so vociferously sounded, instead of having been consigned to an oblivious tomb, it is not only still alive and flourishing, but it has added to it a twin sister in the shape of pulmonary phlebotomy, by Dr. Christian Simpson; and now I am about to advocate the extension of this mode of curative procedure to every other accessible visceral organ of the body.

[1] Read in the Section of Surgery and Anatomy of the American Medical Association, at Detroit, June 9, 1892.

[2] "Hepatic Phlebotomy," Brit. Med. Journ., November 18; ibid., January 15, 1887.

Thinking that no simpler or more effective plan of proving either the safety of, or the benefits to be derived from any novel system of treatment can be adduced than by quoting successful illustrative cases, I will not waste time in exposition, but at once briefly narrate two most successful examples, which can neither be gainsaid nor doubted; and, in order to save space, and yet to put it in the power of those specially interested in the subject to obtain possession of the details in each case, I will cite cases that have elsewhere been published *in extenso*, the one by myself,[1] the other by my son, Dr. Vaughan Harley:

CASE I.—The patient, a lady of intemperate habits, aged thirty-eight, was not operated upon until she was supposed to be in a dying state, from the combined effects of a greatly enlarged, hard, and inflamed liver, complicated with ascites and marked anasarca. After Dr. Dunbar Walker (whose patient she was) had rendered her insensible with the A. C. E.[2] mixture I pierced the upper part of the liver from right to left with an eight-inch long trocar, of the diameter of between Nos. 2 and 3 English catheter. The normal liver being at least ten inches broad in an average-sized woman, and this liver being greatly enlarged—several inches both laterally and perpendicularly—I felt perfectly safe in thrusting the eight-inch trocar up to its very hilt. This was done with the hope that during its penetration it might wound one or more blood-vessels of sufficient caliber to yield a free stream of blood. On withdrawing the end of the canula about an inch or two, blood issued freely, and twenty ounces were abstracted. The skin-wound was then closed with a piece of sticking-plaster, and a bandage applied.

Such was the benefit derived from the operation that from the very next day the downward progress of the case was arrested. The liver decreased in size, and with the aid of tapping, the ascites and anasarca disappeared, and within three months the patient was so well and strong that she could walk a distance of three miles, and she never had a return of the disease.

CASE II is one of an entirely different character, cited with a view of showing, equally forcibly, the value of hepatic phlebotomy in a case of enlarged and inflamed liver—the seat of strumous abscesses.

The patient was a country lad, aged seventeen, whom I was called to see by Dr. Cooper Key and Surgeon Heaven. The liver dulness extended from the right nipple-level down to two inches below the umbilicus, and four to the left of the median line. Phlebotomy was performed while the patient was

[1] Brit. Med. Journ., November 13, 1886.

[2] This is a safer form of anesthetic than chloroform, consisting of one part of absolute alcohol, two parts of chloroform, and three parts of sulphuric ether, proposed by me, and recommended by the committee "On the uses and effects of Chloroform," appointed by the Royal Medico-Chirurgical Society of London, of which I was a member. See the *Transactions* of 1864, p. 341.

under the influence of the A. C. E. mixture; but although the liver was punctured in several places, such was the hardness and compactness of its tissues (on account of the inflammation) that only a very little blood was obtained. Fortunately, however, profuse hemorrhage took place some hours afterward[1] from the wounded liver, through the bile-ducts into the intestines, with the result that within thirty-six hours the liver had diminished in size no less than an inch and a half all round, which made an enormous diminution, and within six days the first abscess had pointed and been emptied. In three days more a second abscess was likewise emptied, and on the thirty-eighth day the patient returned to his home in Lincolnshire, a distance of 120 miles, without a single bad symptom.

The results of these two cases must, I think, convince even the most skeptical, not only of the safety of this operative mode of procedure, but of its utility as a curative agent, for, without it, I have not the slightest hesitation in saying that both of the patients who were subjected to it would have been in their graves within a few days.

I now come to pulmonary phlebotomy, first proposed and practised by Dr. Christian Simpson.[2] This I consider to be the most difficult form of visceral phlebotomy. From the fact that the lungs are contained between the ribs, and constantly contracting and expanding, it is impossible by the application of an external bandage to bring the thoracic parietes into firm contact with the orifice of the wound made in pulmonary tissues so as to effectually close it. Consequently, the closure of the wound in the lung, after the operation, must be effected by the resilience of the pulmonary tissues being sufficient to retain a blood-clot in the channel made by the trocar. In order to favor this, Dr. Simpson adopted the following plan: "After the withdrawal of twelve ounces of blood the canula was held *in situ* with the finger over the end, to allow a clot forming, and then it was slowly withdrawn. . . . The patient was immediately and markedly relieved, both as regards the cerebral (she had been comatose, G. H.) and pulmonary conditions. No effusion took place; there was only trifling hemoptysis, and a suspicion of a small patch of pleurisy, without a rise of temperature." Dr. Simpson employed aspirating needles in his operations, and although they did not prove like mine, successful, this can scarcely be said to have been due to any fault in the operation, but to the diseases complicating the pulmonary congestion for which the phlebotomy was had recourse to, two of the cases being complicated with advanced organic heart-disease, and the other two being cases of equally incurable Bright's disease.

Having thus shown that the apparently heroic method of extracting blood directly from an inflamed internal organ can not only be practised with safety on a favorably-placed gland like the liver, but on one of the most unfavorably-placed organs of the body for the successful performance of the operation, namely, the ever-moving lungs, I think I need scarely dread censure if I boldly recommend the performance of visceral phlebotomy on every suitably-situated internal organ (when it is in a seriously congested condition) in preference to the application of leeches or cupping-glasses to the external parietes over it, seeing that the cutaneous blood-vessels have in no case whatever any direct communication with the internal organs lying beneath them. Consequently, the theory of doing good is but a delusion, and the practice of leeching and cupping but a snare, if done with the intention of directly diminishing the amount of blood circulating through or stagnating in a visceral organ. As the withdrawal of blood from the cutaneous capillaries can only act beneficially in such cases, in so far as it diminishes the entire amount of blood in the body, and seeing that the largest of the internal organs forms but a small proportion of the whole frame, the diminution in its blood-supply can be but an insignificant one; whereas, by my proposed method, as shown in the case of the liver from which twenty ounces of blood were directly withdrawn, and Dr. Simpson's of the lung, in which twelve ounces of blood were equally directly extracted from the organ, as much or as little blood can be removed from the congested parts as the operator thinks needful.

Within the last few days I proposed extracting blood from a tender, greatly enlarged, and inflamed spleen, but was thwarted by the nervous apprehensions of an imperfectly educated coadjutor, from his not knowing that even needles as large as No. 3 catheters can be not only thrust into but can be kept for twenty minutes in the ventricles of the heart of living dogs with perfect impunity. It is knowledge that inspires surgical confidence, and without it no one ought to attempt visceral phlebotomy. For those about to have recourse to it as a curative measure for the first time the following hints may, perhaps, be of service:

1. If it be deemed advisable to render the patient insensible, induce anesthesia of the skin at the point selected for puncture, by the local application of cocaine hydrochlorate.

2. Select the seat of puncture, and give such a direction to the trocar as will insure the point of its entrance into the organ being brought into direct contact with the parietes by the application of

[1] This case was reported in full by my son, Dr. Vaughan Harley, in his paper "On Abscess of the Liver," Brit. Med. Journ., November 23, 1889.

[2] "A New Method of Bleeding in Some Forms of Pulmonary Congestion, with Four Cases."—*Lancet*, November 1, 1890.

pressure to them by a bandage after the completion of the operation, in order that the mouth of the wound in the organ may be thereby readily and effectually closed.

3. Let the trocar or aspirating needles be of the size of a No. 2 or 3 catheter, and sufficiently long to penetrate deeply into the organ operated on, without there being any risk of entirely transfixing it.

4. Let the direction of the instrument be such as to avoid its puncturing any large bloodvessel.

5. When all these points have been attended to it will save the patient pain if the instrument be rapidly and at once thrust into the organ to the full depth it is intended to puncture.

6. If no blood flows, then slowly and by distinct degrees withdraw the canula, in the hope that a sufficiency of blood will ooze from the transfixed capillaries into the canal made in the organ by the instrument, as will yield a free stream, and enough for the required purpose.

7. When the wished-for amount of blood has been obtained, before withdrawing the canula altogether from the organ, but just before it leaves it, in order to obtain a blood-clot-cork to stop up the wound with, place the finger on the mouth of the canula, and keep it there until a clot has had time to form, both in its interior and in the canal made in the organ itself by the instrument.

8. The next point is to get the clot in the canula to break off from that in the canal, so as to leave the latter behind, in order that by its presence there it may prevent any oozing of the blood from the organ after the withdrawal of the instrument. This is best done, I think, by giving a slight twist to the canula at the moment it is felt to leave the organ. And the resilience of the tissues of the organ will cause them to contract sufficiently firmly round the clot within it to prevent its being drawn out along with the canula.

9. All that now remains to be done is to place an inch-sized square piece of adhesive plaster over the seat of the external puncture, and bind a pad over it, with a long flannel bandage sufficiently firm, so as to ensure the internal surface of the parietes being brought into close contact with the orifice of the wound in the organ, the more effectually to prevent the possibility of accidental internal hemorrhage taking place.

All I have to add is that, if I am not very much mistaken, the day is not far distant when the old-fashioned, erroneous, as well as unsatisfactory, mode of withdrawing blood cutaneously will be totally abolished in all cases of inflammation and congestion of internal organs having no circulating connection with the skin, and that the practice of visceral phlebotomy will become the recognized orthodox method of depletion in such cases.

PULMONARY TUBERCULOSIS: ITS DIETETIC AND REGIMINAL MANAGEMENT.[1]

BY EDWARD F. WELLS, M.D.,
OF CHICAGO.

PULMONARY tuberculosis, the greatest enemy of mankind, is not an incurable disease. However, if the unfortunate subject of this affection is to be given an opportunity to escape the fate of the majority, he must be surrounded by the most favorable conditions, and must submit to certain necessary rules and regulations. I deem it an essential preliminary to success that there should be a happy combination of interests and hopes upon the part of both patient and physician. The patient should be candidly informed of the nature of his malady, of its varied and tedious course, of its leading symptoms and complications, of its dangerous character, of the possibility of cure, and of the necessity of exercising to the utmost his powers of patience, hope, and confidence. On the other hand, the physician should have a wide and exact knowledge of medicine in general and of tuberculosis in particular; he must know and believe that the disease is amenable to treatment; he must be kind, considerate, resourceful, hopeful, truthful, and enthusiastic, and, above all other qualities, he must be possessed of the ability to transfer his convictions, hopefulness, and enthusiasm to his patient. That implicit confidence of the patient in his medical attendant may be obtained and retained, week after week, month after month, and year after year, until at last the victory is won, or defeat has been suffered only after every point has been stubbornly contested, requires a profound knowledge of human nature and the highest qualities of the physician.

One of the most striking features of pulmonary tuberculosis is the progressive loss of body-weight. In the presence of advancing local affection, this is so constant as to afford a very accurate index of the progress of the case. Experience has abundantly proved that in a great many cases it is possible to stay the waste of tissues, and even to cause the patient to gain in weight by giving careful attention to diet, and that under these circumstances the pulmonary trouble is held in abeyance and the local lesions have a tendency to heal. This being the case, it is evident that the subject of feeding tuberculous patients is one of prime importance, and worthy of the most careful consideration.

Anorexia and defective powers of assimilation are present in those cases in which the stomach and intestines, including their adnexa, are affected by organic disease. Loss of appetite is also a prominent feature in many cases during the height of a febrile

[1] Presented to the Section of Practice of Medicine of the American Medical Association at Detroit, June, 1892.

attack, and, in a certain proportion of patients, without any obvious cause. However, the rule is, especially in the earlier part of the attack, that the patient has either a good appetite, with moderate capabilities of assimilation, or he can receive, digest, and assimilate liberal quantities of food, although he may have no desire for it—there being a state of apathy, rather than one of disinclination. It is in this last and largest class that we are able to utilize our knowledge of dietetics to the greatest advantage, and that this paper may not be unduly extended, my remarks will be confined, in the main, to this class of cases.

Foods that contain nourishment in the most concentrated form should constitute the basis of dietetic management. In order, however, that the best results may be obtained, these must be accompanied by properly selected adjuvants, correctives, and—padding. By the last term I mean certain bulky articles of diet that have but little nutritive value, but are necessary for the greatest digestive and assimilative activity.

For many years I have discussed this subject very freely with my patients, inquiring into their preferences and sensations, and obtaining their opinions and estimates, and the following diet-table is the result of my experience. In practice it is suitably modified to meet the surroundings and other exigencies of the individual case for which it is prescribed.

MENU.

On Rising, 6 A.M.

Hot Milk and Vichy. Hot Meat-broth.
Tea, made with Milk.

Breakfast, 7 A.M.

Rare Steak or Loin-chops. Mutton-chops, with Fat.
Bacon or Ham, with Fat.
Eggs.
Potatoes. Saratoga Chips. Fried Mush.
Toast, with Cream or Butter.
Oatmeal, Wheaten Grits or Rice, with Cream.
Fruit.
Coffee or Cocoa, made with Rich Milk.

Lunch, 10 A.M.

Milk. Eggnog. Meat-broth.
Stale Bread. Crackers. Zwieback.

Dinner, 12.30 P.M.

Beef, Mutton, or Chicken-broth. Oyster or Turtle-soup.
Raw Oysters. Fish. Raw Clams.
Poultry. Roast Beef or Mutton. Game.
Potatoes. Beans. Green Peas. Asparagus. Spinach.
Tomatoes. Celery. Pickles. Lettuce. Cauliflower.
Stale Bread. Graham Bread. Corn Bread.
Fruits, with Cream.
Custards. Pie. Cakes.
Milk. Milk Coffee.

Lunch, 3.30 P.M.

Milk. Koumyss. Clabber.
Ham or Tongue Sandwich.

Supper, 6.30 P.M.

Thick Meat or Fish Soup.
Cold Meats. Meat Salads.
Stale Bread. Crackers. Graham Bread.
Meat Jellies. Neufchatel or Cottage Cheese. Fruit Jellies.
Fruit. Cakes. Ice-cream.
Milk Coffee. Eggnog. Milk Tea.

Lunch, 9.30 P.M.

Hot Milk. Clam Bouillon. Beef Tea.

To this list may be added such other foods and drinks as the appetite craves and that are found to agree. Any article of diet that the experience of the patient has shown to be detrimental is to be omitted.

Food should be taken in as large quantity as possible. At each lunch from a half-pint to a pint of liquids should be ingested, and at each of the three principal meals an equal quantity of milk, or of coffee, tea, or cocoa, made with rich milk and cream, should be taken.

There is no objection to changing the dinner hour to 6.30 P.M., and taking a mid-day luncheon equivalent to the supper, as prescribed. Meals should never be hurriedly taken, and they should be always accompanied by cheerful conversation. Eating should be made one of the principal objects of the patient's life.

The diet should be varied to meet special indications or the patient's desires. If there is little or no fever, and if starch, sugar, and fats are well borne, foods containing these principles in abundance should be freely employed. If there is much fever, or if there is apathy or antipathy to eating, the diet should be composed mainly of animal foods and very concentrated nourishment, with fresh fruits and vegetables.

If there is a tendency to flatulent distention of the stomach or bowels after eating, bread and other farinaceous articles of food should be taken sparingly. If the bowels become constipated, fruits, coarse vegetables, corn or Graham bread should be largely eaten; and if diarrhea supervenes, food of this kind should be avoided.

At the very beginning of treatment the patient should be impressed with the great importance of certain hygienic and regiminal regulations. These should be fully discussed with him, and he should be made to understand the reasonableness of the rules prescribed, in order that his hearty and intelligent coöperation may be secured. The peculiarities of the patient must be fully weighed, but the following points I consider with every patient.

Tuberculous patients are usually persons that have formed strong attachments to home, family, and friends, and do not readily adapt themselves to changed surroundings. For this reason, home is the best place for the vast majority of them. This statement does not apply to the comparatively small

contingent of tuberculous patients that are always in touch with their surroundings and who are natural travellers. With these, travel, change of scene, and climatic treatment may be considered, but a change of residence should not be undertaken without thoughtful consideration and the special advice of the medical attendant.

The residence should be exposed to sunshine and be sheltered from raw and cold winds. The rooms should be well ventilated, free from draughts, and comfortably warmed and furnished. The home should be entertaining, pleasant, and cheerful. The patient should sleep alone.

Pleasurable exercise, such as riding, boating, walking, travelling, games, etc., and non-exhausting, useful employment that interests and does not expose to deleterious influences are beneficial.

At frequent intervals the patient should practise forced breathing—both inspiration and expiration. As a measure of the aërial capacity of the lungs he should count aloud as many times as possible without taking breath.

The clothing should be light and comfortable. That next the skin should be of wool and of fine texture. In cold weather, the clothing should be sufficient to prevent chilliness, and the chest should have extra protection.

Once or twice weekly the patient should have a hot sponge or tub bath. The surface should be quickly dried, rubbed to a glow, and enveloped in warm woollen garments. The bath-room should be comfortably heated.

Should night-sweating supervene, the surface should be bathed with very hot water or vinegar, and after being dried should be rubbed with flour, starch, or other absorbent powder.

Twice a day there should be applied to the surface of the chest a stimulating liniment, composed of equal parts of turpentine and oil of hyoscyamus, or oil of sassafras. Mustard plasters and hot applications may be employed for the relief of local pains. These failing to give relief, small blisters may be used.

The cough should be restrained as much as possible, and endeavors to expectorate should be made with every effort. A dry, irritable cough, without expectoration, should be held in check by proper remedies.

The sputa should be received in a cup containing a quantity of moist absorbent and antiseptic material. The contents should be removed once or twice daily, and the cup cleansed. Moist antiseptic cloths may be substituted for the cup. The cloths and contents of the cup should be burned.

Catarrhal colds should be avoided by every known means, and if they occur they should be treated with the utmost care, and the treatment be continued until the disappearance of every trace of catarrh. The patient should consult his physician at once upon the appearance of new symptoms the significance of which may be unknown to him.

The patient should observe and record carefully, upon suitable blanks, his condition from day to day. Such records afford information of the greatest value in formulating prognoses and lines of treatment. He should bring them with him when he consults his physician. "With careful instruction an intelligent patient may become," to a limited extent, "his own observer, and to a certain extent, his own medical attendant," and to his advantage.

163 STATE STREET.

CLINICAL MEMORANDA.

A CASE OF PUERPERAL MANIA.[1]

BY LLEWELLYN ELIOT, MD.,
OF WASHINGTON, D. C.

THE terms "puerperal insanity," "puerperal mania," and "melancholia of lactation" are misnomers; "insanitas in puerpero," "mania in puerpero," and "melancholia ex lactatio" are the terms that should be substituted, since they do not differ clinically from insanity, mania, and melancholia as usually observed; the puerperal state simply precipitates them, either through heredity or mental worry before confinement; or untimely suppression of the lochial discharge or excessive lactation after delivery. More cases of melancholia than of mania are met with in practice. Asthenia favors melancholia.

Without entering into the discussion of the pathology or treatment of mania in puerpero I will submit the history of a case, the notes of which were furnished me by Dr. A. Behrend, of this city, with whom I was associated in the case from the night of the delivery.

I have not been able to find clinical reports of fatal cases of mania in puerpero, and for that reason desire to put the following history on record, hoping to see, in the future, reports of cases both successfully and unsuccessfully treated, so that rational conclusions may be formed upon the subject. Successfully treated cases only are reported, but they throw no light upon prognosis.

Mrs. X., white, thirty-one years old, of good physical development, was delivered of her sixth child on the morning of June 7th.

In her previous confinements, three male children, shoulder-presentations, were born still; one female child was born alive by version; of the fifth pregnancy no history was obtained. Each confinement was attended with hemorrhage, uterine inertia, and fever.

There was a history of hereditary predisposition to insanity on her maternal side, one aunt being at the time of this confinement an inmate of an insane asylum.

On June 2d, Mrs. X. experienced the false pains of labor, and became very apprehensive and despondent as to the termination of her gestation.

On the afternoon of June 5th, after a severe fit of

[1] Presented to the Section of Obstetrics and Diseases of Women of the American Medical Association, at Detroit, June, 1892.

coughing, the membranes ruptured and the waters were discharged; she experienced no pains; dilatation of the os was hardly perceptible; the uterus was high; no certain diagnosis of the presentation was made. Five grains of quinine sulphate were given twice daily, to stimulate the uterus to action.

On June 6th, the patient was very nervous; the uterus was somewhat lower; there were slight pains. A diagnosis of left shoulder presentation was made. During the day the pains became stronger and the patient more nervous. At twelve o'clock at night the os was well dilated, the shoulder presenting, the patient restless and tossing. Version was determined upon. It was at this time that my connection with the case began. At 1.30 an anesthetic was administered; version was performed, and delivery was completed in about half an hour. The child, a male, was born with a knot in the placental extremity of the funis; the heart-pulsations were weak; it could not be resuscitated. Hour-glass contraction followed delivery. The hand was introduced and the placenta extracted; hemorrhage was not profuse; shock was slight. A dram of the fluid extract of ergot and a fourth of a grain of morphine sulphate were administered. During the administration of the anesthetic the woman became almost unmanageable. As soon as the delivery was completed, she evinced symptoms of religious mania, but became quiet under the morphine given.

On June 7th, at 10 A.M., the temperature was 98.6°; the pulse, 90. The woman had rested well; the discharges were moderate; urine had been passed; there was no abdominal tenderness. A light diet was directed.

On June 8th, at 10 A.M., the temperature was 100°; the pulse, 98. There was slight abdominal pain and severe pain in the left thigh. Turpentine was applied to the abdomen and flaxseed poultices to the thigh; belladonna, morphine, and quinine were given every two hours, and the light diet continued.

On June 9th, at 10 A.M., the temperature was 100.5°; the pulse, 106. There was no pain, but much sweating, without chill; the bowels were moved with a saline; quinine sulphate, gr. v, was given every three hours; the lochia were suppressed.

On June 11th, at 10 A.M., the temperature was 100.5°; the pulse, 100. There was slight rambling and irrational action. At 1 P.M. the woman became maniacal, jumping from the bed and attempting to reach the front window. She was with difficulty restrained. The temperature was 100.5°; the pulse, 100. Chloral hydrate and potassium of bromide, each gr. xv, were given every three hours. At 8 P.M. the patient had not slept; she passed urine and feces in bed. Chloral and bromide were continued.

On June 12th, at 11 A.M., the temperature was 100°; the pulse, 110. The mania continued; the bowels were opened with calomel, soda and rhubarb; chloral and bromide were continued. At 8 P.M. the temperature was 100.4°; the pulse was not noted. The condition continued unchanged.

On June 13th, at 9.10 A.M., the temperature was 100.6°; the pulse, 110. The patient presented delirium of an hysterical type; there was no tenderness over the abdomen, but considerable tympanites; the lochia had ceased; feces and urine were discharged involuntarily in bed: turpentine stupes were applied to the abdomen. At 8 P.M. the temperature was 99.8°; the pulse, 100. The condition was unchanged.

On June 14th, at 10.30 A.M., the temperature was 100.6°; the pulse, 110. There was no abdominal tenderness; the tympanites had diminished; there was a slight discharge of blood from the uterus, having no odor; the mania continued; elixir of ammonium valerianate and potassium bromide were ordered. At 1.30 P.M. the temperature was 101.8°; the pulse, 120. The condition remained unchanged. At 9 P.M. the temperature was 99.8°; the pulse, 100. The patient urinated very frequently, but in small quantity.

On June 15th, at 11 A.M., the temperature was 100.5°; the pulse, 110. The tympanites was diminishing; the mania was constant. At 9 P.M. the temperature was 98.6°; the pulse, 110. The condition was not changed; the treatment was continued. The patient refused nourishment.

On June 16th we were unable to take the temperature or the pulse during the entire day on account of the mania. The medicines were continued; nourishment was refused. At 9 P.M. morphine sulphate, gr. ¼, and atropia sulphate, gr. $\frac{1}{100}$, were given hypodermatically; the patient slept until 4 o'clock A.M.

On June 17th, at 10 A.M., the temperature was 104°; the pulse, 119. The mania was constant; the medicines were continued; the patient refused all nourishment. At 10 P.M. the temperature was not taken. The mania was furious. Morphine sulphate, gr. ¼, was given hypodermatically. The woman slept until midnight, when there was a sudden explosion (physometra), with a great rush of water, followed by a slight, bloody discharge. The abdomen became perfectly flat, the delirium more intense, and nourishment was refused. This physometra explained entirely the cause of the tympanites, showing a continued condition of inertia of the uterus, which appeared at the beginning of labor, and was not owing to any septic condition.

On June 18th, at 10 A.M., the temperature was 104°; the pulse, 120. There was no abdominal tenderness; the patient took nourishment; she rambled constantly, but was more controllable; she took nourishment; the lochial discharge continued; bromide and valerian and quinine sulphate, gr. x, were given. At 1 P.M. the temperature was 103°; the pulse, 116. The quinine was repeated. At 3 P.M. the temperature was 101°; the pulse, 110. Quinine was repeated. At 10 P.M. the temperature was 101; the pulse, 100. The woman was now resting quietly.

On June 19th, at 2 A.M., the temperature was 103°; the pulse, 110. Nourishment was refused. At 7 A.M. the temperature was 104.2°; the pulse, 124. Milk and quinine sulphate were given per rectum. At 11 A.M. the temperature was 103.4°; the pulse, 110. There was entire apathy to everything; asafetida and quinine were given by suppository every two hours; there was inability to swallow; an almost incredible amount of urine was removed with the catheter; no albumin was found. At 10 P.M. the temperature was 104.8°; the pulse, 130. An ice-bag was applied to the head; the urine was removed by catheter; the patient was sponged with alcohol; the pupils reacted to light; nourishment was refused; the lochial flow continued moderate; hyoscyamine, gr. $\frac{1}{100}$, was administered.

On June 20th, at 2 A.M., the temperature was 102°; the pulse, 120. The woman's condition was unchanged. At 11 A.M. the temperature was 104°; the pulse, 126. At 2 P.M. the temperature was 104°; the pulse, 130. Salol and bismuth subnitrate were given for diarrhea; a little nourishment was taken; milk-punch was given every two hours. At 10 P.M. the ice-bag had been continued throughout the day at intervals; the patient took notice and answered questions intelligently.

On June 21st, at 10 A.M., the temperature was 102°; the pulse, 120. The woman's condition was improved; she took nourishment; she rambled at intervals. At 8 P.M. she suddenly collapsed and could not be revived, and died at 9 P.M. of exhaustion.

No autopsy was allowed.

1106 P STREET N. W., JUNE 3, 1892.

VOMITING INDUCED BY AN ELONGATED UVULA; OPERATION; RELIEF.

BY EDWARD F. PARKER, M.D.,
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VOMITING, as a symptom of some disturbance of the digestive canal, is so commonly associated with disease or functional derangement of the stomach and intestines, that we are likely to overlook the fact that the upper part of the alimentary tract is sometimes responsible for the difficulty. A common division of the causes of vomiting is into local, central, and reflex. In the pharynx and surrounding parts, from their exposed position and anatomic relations, we frequently find the origin and explanation of this last class.

Quite recently a case presented itself exemplifying this fact, and while impressing upon me the old medical axiom that to treat disease successfully we must find its cause and remove it, at the same time it illustrated the truth that seemingly grave conditions may arise from trifling causes, which if not discovered and removed, render all treatment useless and ineffectual.

The pharynx and adjacent parts can always be easily and quickly examined, and such examination should be made, so that we may consider or eliminate them as factors in all disturbances that may possibly originate there. In justification of these remarks the following case is interesting and instructive.

During the month of March, 1892, F. G., twenty-one years old, consulted me for nausea and persistent vomiting. His face wore an anxious expression, though he was apparently in good health. The nausea had been annoying him for some time, but the vomiting had only commenced two weeks before. He was scarcely able to retain anything on his stomach. His health had previously been excellent. Medication had failed to give him any relief. I was struck by the man's face.

A month or so previously, in examining the throat of a patient, I found an elongated uvula. I advised an operation and appointed an hour for the next day. The patient was alarmed at the idea of any cutting, and did not return. Now, though this patient did not complain of any symptoms referable to his throat, I thought I recognized in him my former renegade. This identity, however, he denied; but curiously enough, on examining the throat, an extremely long uvula was found, resting on the base of the tongue and exciting retching with every attempt to swallow. The uvula was unusually elongated and tapering in shape, though not equal in length to one described by Morell Mackenzie, that was so long that it was inhaled into the larynx and produced symptoms of suffocation.

Under cocaine anesthesia a piece more than an inch in length was removed, and the next morning the patient returned relieved.

The terms excision and amputation as applied to this operation seem to me to be inappropriate and misleading, as they imply removal of the organ *in toto*, while uvulatome and uvulotomy accurately express the instrument and the operation.

Elongation of the uvula, though more frequently the result of a chronic inflammatory condition of the pharynx and naso-pharynx, which by causing constant hawking and coughing leads to lengthening of the organ and relaxation of the soft palate, may also be congenital.

In the majority of cases our attention is called to the throat by a tickling, irritating sensation, as if a foreign body was present; nausea and vomiting are not so common as symptoms of this condition.

The patient was a good singer and his voice was materially improved by the operation.

It is in the light of a practical lesson, rather than as an unusual or curious incident, that I think this case worthy of report, in that it teaches the necessity of making a thorough examination in every case that comes for treatment, and warns against any routine in prescribing drugs for symptoms that may owe their origin to many different causes.

70 HASELL STREET.

BACKWARD DISLOCATION OF THE HEAD OF THE RADIUS.

BY ALBERT C. BARNES, A.B., M.D.,
RESIDENT PHYSICIAN TO THE POLYCLINIC HOSPITAL, PHILADELPHIA.

BACKWARD dislocation of the head of the radius is a very rare occurrence, Markoe, quoted by Agnew, having been able to collect records of but twenty-eight cases. The following presented so many characteristic symptoms as to make the correctness of the diagnosis indisputable:

W. C., six years old, fell with considerable force, and in an effort to protect his trunk from injury suddenly threw out his right arm, so that the violence came directly in contact with the palm of his hand, while his arm was in an extended and extremely pronated position—a similar history, it will be observed, to that of most cases of "Colles's fracture." Ten minutes after the accident the boy was brought into the hospital, and presented the following deformity: His arm, in a position of almost complete pronation, was flexed at an angle of about 120°; his hand was also somewhat flexed and fixed. An examination of his elbow-joint, the normal contour of which was but slightly disturbed, revealed behind the external condyle a hard, resisting mass, to which a distinct rotary movement could be communicated by force applied to the distal extremity of the radius. To prove that this mass was the displaced head of the radius, we searched in the position in which the head of the radius normally lies, and detected there a

slight depression corresponding with the position of the sigmoid fossa. Careful and repeated manipulation failed to elicit crepitus—thus excluding fracture of the internal condyle—a complication that frequently exists in conjunction with backward dislocation of the radius. Attempts at flexion, extension, pronation, and supination were attended with excruciating pain—a fact that would seem to indicate laceration of the capsular ligament. The treatment was very simple. The patient being etherized, counter-extension was applied to the arm, with extension of the forearm and direct pressure on the dislocated head of the bone. The latter readily slipped into its normal position. The joint was then enveloped in gauze saturated with lead-water and laudanum, an anterior extreme obtuse-angled splint applied, and the arm dressed in supination. Subsequent daily dressings show that the bone is still in position. The result thus far indicates perfect recovery, with preservation of the integrity of motion.

MEDICAL PROGRESS.

A Successful Laryngectomy.—At a meeting of the Philadelphia County Medical Society, J. SOLIS-COHEN presented a patient, forty-four years old, from whom he had removed the larynx and the first ring of the trachea. Nineteen years previously the man had presented symptoms of laryngeal obstruction and a large papilloma was removed piecemeal by intra-laryngeal procedures. For ten years there was no indication of recurrence. Then the previous symptoms returned, and various modes of treatment were employed. For a year the symptoms had been aggravated. A growth occupied a large portion of the left side of the larynx, almost occluding its lumen. It had penetrated the walls of the larynx and projected externally. Precautionary tracheotomy was performed, and three or four weeks later a portion of the growth was removed by intra-laryngeal procedures. The external growth was subsequently excised, the larynx split, and all the internal growth removed. The case did well for four weeks, when recurrence took place, the neoplasm growing rapidly. Radical operation was now proposed and acquiesced in. The entire larynx and the first ring of the trachea were removed. The esophagus was left as nearly intact as possible. The patient made an uninterrupted recovery.

Suppurative Otitis Media in Consequence of a Carious Tooth.—SCHWARTZ (*Zeitschr. für Ohrenheilk.*, 1892, xxii, 2, p. 121) has reported the case of a man, twenty-one years old, who complained of pain in the ear, with a purulent discharge. There was some swelling of the bony portion of the auditory canal. The employment of the Eustachian catheter was attended with bleeding from the nose. Examination of the nasal cavity disclosed the presence of the carious root of the second molar tooth on the left side of the upper jaw and a fistula traversing the hard palate. The tooth was removed and the fistula closed. Evidences of inflammation of the mastoid process, however, became prominent, and it became necessary to operate. When the mastoid process was opened, granulations and pus were found. These were removed and suitable dressings applied. There were no further complications, and the case progressed to perfect recovery.

The Reflexes in Spinal Injuries.—From an analysis of twenty-nine cases of injuries to the cervical and dorsal regions of the spinal cord under his observation, THORBURN (*Medical Chronicle*, 1892, xvi, 2, p. 73) concludes that in total transverse lesions of the spinal cord both the superficial and the deep reflexes below the functional level of the injury are permanently and entirely abolished, while in partial lesions the reflexes are retained, perhaps exaggerated. It is thought that the abolition of the reflexes is dependent upon isolation of the spinal centers from their cerebral connections. It is further concluded that shock is not the cause of the early loss of the reflexes in spinal injuries. If the lesion causes complete paralysis and anesthesia, the deep reflexes are always lost. If motility or sensibility, or both, return, the reflexes likewise return. The rectum and bladder participate in the derangement of the reflexes.

Cachexia Strumipriva, with Paralysis of the Right Vocal Band.—NATIER (*Rev. de Laryngol., d' Otol., et de Rhinol.*, 1892, No. 12, p. 422) has reported the case of a man, twenty-nine years old, in which thyroidectomy had been performed for the removal of a goiter. The man appeared to be puffed, the eyes fixed and small, the cheeks relaxed, and the face expressionless. The skin was dry and colorless; the hairs were likewise dry and brittle, and had lost their luster. The pulse was small and slow. There was increased emotional mobility. On laryngoscopic examination the right vocal band was found immobile and in the median position, while the movements of the left band were paretic.

A Vegetable Substitute for Decalcified Bone Plates.—BARACZ (*Centralbl. für Chirurgie*, 1892, No. 23, p. 481) proposes the employment of plates obtained from vegetables as a substitute for decalcified bone plates in the various anastomotic operations upon the digestive canal. By experiments upon animals he has found that plates prepared from Spanish turnips answer the purpose admirably. Such plates have the advantages of being elastic, mobile, and absorbable. The suggestion has found practical application in a case in which gastroënterostomy became necessary by reason of the existence of inoperable carcinoma of the pylorus and stomach.

Double Optic Neuritis Following Influenza.—SNELL (*Brit. Med. Journal*, No. 1642, p. 1308) has reported the cases of two females, nineteen and thirteen and a half years old, respectively, in each of which failure of vision was noticed a few weeks after an attack of influenza. In the elder girl the neuritis had nearly passed off. When she first came under observation the optic discs were atrophied, and there was no perception of light. The younger patient was seen three weeks after vision began to fail; the neuritis was then well marked. The inflammation had subsided, but the discs were atrophic, and there had been but little improvement in sight.

The Urine in Epilepsy.—At the recent French Surgical Congress GILLES DE LA TOURETTE (*La Médecine Moderne*, 1892, No. 18, p. 284) announced that the differentiation of focal epilepsy of hysterical origin from focal

epilepsy of organic origin could be made by examination of the urine. Observation has shown that after a paroxysm of epilepsy of organic origin the proportions of fixed residue, of urea and of phosphates, are increased beyond the normal, while after an attack of epilepsy of hysterical origin these proportions are diminished below normal.

The Treatment of Leg-Ulcers. — At a meeting of the Philadelphia County Medical Society T. S. K. MORTON recommended the following treatment of leg-ulcers: The surroundings are thoroughly cleansed with soap, brush, and water, and, if necessary, shaved. Then a douche of simple water is applied, followed by one of sublimate solution (1 : 1000), if the ulcer is foul, inflamed, or otherwise contaminated. Next, a spray of hydrogen dioxide (15-volume solution) is employed. When active effervescence has ceased, the surface is gently irrigated with simple water. The ulcerated area is then covered with strips of protective. A dressing of gauze or butter-cloth wrung out of sublimate solution is next applied; over this the bandage, without reverses. The treatment should be repeated daily, or on alternate days, until the wound presents a healthy appearance, and then with diminishing frequency.

Hydrocephalus of Syphilitic Origin.—HELLER (*Deutsche medicin. Wochenschr.*, 1892, No. 26, p. 608) has collected from the literature sixteen cases of hydrocephalus, in which a history of syphilis could be definitely traced, and adds a case under his own observation. He, therefore, issues the injunction that, in every case of hereditary syphilis the possibility of the development of hydrocephalus should be borne in mind, and that, in every case of hydrocephalus, a history of hereditary syphilis should be inquired for. If a diagnosis of hereditary syphilis is at all probable, energetic antisyphilitic treatment is at once to be instituted.

The Pathogenesis of Eclampsia.—From a careful study of two fatal cases of eclampsia GERDES (*Deutsche medicin. Wochenschr.*, 1892, No. 26, p. 603) arrives at the conclusion that the disease is dependent upon the activity of a specific bacillus, infection occurring by way of the uterus, probably in consequence of an endometritis antedating conception. Convulsions occurring during parturition, dependent upon eclampsia, present distinctive pathologic features. Anatomically, eclampsia is a well-defined and well-characterized disease. The profound organic changes found in cases of eclampsia cannot be fully explained by the mere presence of a bacillus. They probably result, directly or indirectly, in consequence of the action of a toxine.

Epilepsy Cured by Replacement of an Anteflexed Uterus.—SNYDER (*The Physician and Surgeon*, July, 1892, p. 305) reports the case of a girl, nineteen years old, who had had nocturnal epileptic attacks for six years, with dysmenorrhea, setting in shortly after the beginning of menstruation. Examination disclosed the existence of pronounced anteflexion of the uterus and a small cervical canal. After dilatation and straightening of the cervical canal, menstruation became normal and the attacks did not again occur.

Sarcoma of the Buttock Treated by Ligature of the Internal Iliac Artery.—At a meeting of the Clinical Society of London, TREVES (*Lancet*, 1892, 3588, p. 1244) reported the case of a lad, eighteen years old, who presented a sarcoma of the buttock of at least three months' duration, for the relief of which the internal iliac artery was ligated by the intra-peritoneal method. Remarkable shrinking of the growth took place, and the lameness and intense pain that had been present disappeared. The patient remained able to walk for ten months after the operation, but died at the expiration of fourteen months.

Intra-urethral Chancre.—BERG (*Monatshefte für prakt. Dermatologie*, 1892, XV, 1, p. 14) has reported the case of a man with gonorrhea, in which, a discharge persisting, examination disclosed the presence, within the urethra about an inch from the meatus, of a chancre. The accuracy of the diagnosis was confirmed by the development of secondary manifestations, which yielded to the employment of mercurial inunctions.

Immunity to Tetanus. — BRIEGER and EHRLICH (*Deutsche medicin. Wochenschr.*, 1892, No. 18, p. 393) have experimentally demonstrated that the milk of animals rendered immune to tetanus contains substances capable of conferring immunity.

TIZZONI and CATTANI (*Deutsche medicin. Wochenschr.*, 1892, No. 18, p. 394) have found that immunity to tetanus exists in the offspring of rabbits and rats that have been rendered immune to tetanus.

The Saliva and Pathogenic Micro-organisms.—A study of the saliva by SANARELLI (*Centralbl. f. Bakt.*, 1892, No. 25) has demonstrated that the saliva is an unfavorable medium for many pathogenic microörganisms. The bacillus of diphtheria may survive for some time, but finally succumbs. The saliva is an excellent medium for the diplococcus pneumoniæ, which grows rapidly, but loses its virulence.—*Monats. f. prakt. Derm.*, 1892, No. 11, p. 483.

The Influence of Antirabic Inoculation upon Epilepsy.—Two epileptic children, bitten by rabid dogs, were treated at the Pasteur Institute at Paris by antirabic inoculations. Not only did rabies not develop, but the epileptic seizures subsequently failed to appear. A similar procedure was adopted in the case of a two-year-old child with extensive cicatrices of the face from burns received two years previously. Two attacks occurred in the course of the treatment, but none afterward.—*Wiener medicin. Presse*, 1892, No. 24.

Recurrent Cerebral Tumor, with Two Operations.—ERB (*Wiener medicinische Presse*, 1892, No. 24, p. 980) has reported the case of a man, forty-seven years old, who presented symptoms of a tumor of the right central convolutions, for which he was operated on, and the growth, a glio-sarcoma, removed. Eight months later the symptoms had returned, and a second operation was performed. The growth was found larger than before. The result was not quite as satisfactory as after the first operation.

Chorea Nephritis. — THOMAS (*Wiener medicinische Presse*, 1892, No. 24, p. 980) has reported the case of a

boy, fourteen years old, with chorea, who likewise presented febrile symptoms, while the urine contained albumin and tube-casts. There was also some edema of the lower extremities. In the course of several days the albumin disappeared from the urine and the choreic movements ceased.

THERAPEUTIC NOTES.

Specific Treatment of Pneumonia.—NEISSER (*Deutsche medicin. Wochenschr.*, 1892, No. 25, p. 593) has reported three cases of pneumonia treated by means of injections of blood-serum. The first patient was seen on the third day of his illness. The lower lobe of the left lung was infiltrated and the sputum contained virulent diplobacilli. An injection of 130 c.cm. of serum obtained from a pneumonic patient two days after the crisis had occurred was made into a vein of the arm. The temperature at once began to decline, the pulse to diminish in frequency, copious perspiration occurred, and convalescence was uninterrupted. The second patient was seen on the fourth day and presented infiltration of the left lung posteriorly. An injection of 70 c.cm. of serum, obtained from the first patient two days after the crisis, was given. Defervescence soon set in. A week later, a pleural effusion was detected and relieved by puncture. Fifty c.cm. of the fluid thus obtained was used for injection in a patient, who in the course of an attack of influenza was seized with a chill, whose sputum contained virulent diplo-bacilli and who presented other phenomena of pneumonia. The temperature at once subsided, perspiration set in, and improvement manifested itself. The temperature remained above normal and a slight pleural effusion formed, but recovery rapidly ensued.

Chlorphenol is the name given to a volatile combination of chlorine and carbolic acid, which has been employed by Passerini by inhalation in the treatment of tuberculosis, bronchitis, and laryngitis. A bit of absorbent cotton is held before the mouth, and drop after drop of chlorphenol is added. At first, fifteen drops are given. The dose is gradually increased by two or three drops at each inhalation until thirty drops or more are taken at a time. The inhalations ought not be continued for longer than five minutes at a time, and should be repeated at least four times a day, an hour before or two hours after meals.—*Journal de Médecine*, No. 25, p. 301.

Phenocoll Hydrochloride.—From a clinical study, BUMM (*Wiener medizin. Presse*, 1892, Nos. 21 and 22) concludes that phenocoll hydrochloride is an active and almost certain antipyretic in tuberculosis in doses as small as seven and a half grains. In the debilitated and in the last stages of the disease, however, the administration of the drug is to be abstained from. In erysipelas the antipyretic effect is slighter and less constant. The action is greatest at the acme of the fever, or with a falling temperature. The decline of temperature occurs usually two or three hours after administration of the remedy, and is often accompanied by profuse perspiration. The drug proved ineffective as an anti-rheumatic. As an anti-neuralgic it acted well in doses of seven and a half grains in migraine. It failed in myelitis and sciatica. Unpleasant secondary manifestations on the part of the intestinal tract and the heart were exceptional.

Arsenic in Leukemia.—At a meeting of the Clinical Society of London, DREW (*Lancet*, 1892, No. 3588, p. 1244) presented a case of leukemia in a man, in which, in the course of three months of treatment with liquor arsenicalis in gradually increasing doses up to one hundred minims daily, the greatly enlarged spleen became much reduced in size, while the proportion of colorless blood-corpuscles diminished from 1 : 14 red to 1 : 400. The number of red corpuscles was increased, but the proportion of hemoglobin underwent but little change.

Syphilotherapy.—DARZENS (*Rev. de Laryngol., d' Otol. et de Rhinol.*, 1892, No. 13, p. 457) has reported a case of tertiary syphilis that had resisted ordinary measures, but which yielded to the following combination:

℞.—Potassii iodidi }
Ammonii iodidi } . . āā ʒij.
Sodii iodidi }
Hydrarg. iodidi rubri . . gr j.
Aquæ . . . . . gr. xij.—M.

S.—Two tablespoonfuls daily.

The beneficial action of this combination is ascribed to the fact that the ammonium and sodium salts of iodine are more soluble than the potassium salt, in consequence of which the first two are rapidly eliminated, while the last is the longer retained. It is suggested that an analogous explanation applies to the utility of the mixed bromides in the treatment of epilepsy.

For Exophthalmic Goiter.—

℞.—Pulv. ipecac. . . . . gr. ss.
Pulv. digital. fol. . . . gr. ⅓.
Ext. opii. . . . . gr. $\frac{1}{10}$.—M.
Ft. pil.

S.—From four to six in twenty-four hours.

DIEULAFOY, *Journal de Méd. de Paris, No. 25.*

For the Incontinence of Urine of Children.—

℞.—Tinct. belladonnæ }
Tinct. cubebæ } . . āā fʒv.
Tinct. nucis vomicæ }
Tinct. rhus aromaticæ } . āā fʒijss.
Tinct. cascarillæ . . . fʒiv.—M.

S.—Ten drops at bedtime and during the night for a child of from seven to ten.

Journal de Méd. de Paris, No. 24.

For Tinea Versicolor.—

℞.—Acid. salicylic. . . . . gr. xv.
Sulphuris precip. . . . ʒj.
Lanolin }
Vaselin. } . . . . āā ʒiijss.
M. et ft. ung.

S.—Apply topically. HARTZELL.

Thiol is recommended for constipation. A pill of a grain and a half is given daily for ten days.

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PULMONARY TUBERCULOSIS.

As of such vital importance do we view any additions to our knowledge of pulmonary tuberculosis that, at the risk of proving tiresome, we present herewith a summary of a study of 1000 cases made by R. W. PHILIP (*Edinburgh Medical Journal*, May, 1892, p. 998). Coming from so reliable a source, questions of diagnosis and of observation are not to be raised, and the report must be received as a valuable contribution to the literature of the subject.

The association of pulmonary tuberculosis with insufficiency of fresh air and exercise, with confinement in badly-ventilated and over-heated apartments, with the inhalation of dust, with exposure to irregular fluctuations in temperature, with frequent childbearing and prolonged lactation, was well marked.

The larger number of cases occurred in males—63.7 per cent. As a rule, females came under observation at a later stage of the disease than did males, and the process pursued a more rapid course in the former than in the latter.

The liability to the disease seemed equally great in the married and the unmarried, although a larger number of married (374) than of unmarried (263) males suffered. The latter difference is to be explained by the fact that most of the cases were in working-people, who marry early, as a rule.

Frequent pregnancy and prolonged lactation appeared to be partly responsible for 6.5 per cent. of all the cases in females, and for 18 per cent. of those in married women. In women, amenorrhea was common, while there was a tendency to aggravation of the general symptoms at the menstrual period, hemoptysis especially being common at that time.

The largest number of cases occurred between twenty-five and thirty-five years of age. In males, the maximum was between thirty-five and forty; in females, under thirty. After thirty or thirty-five in the female, and after forty in the male, the chronic type of disease prevailed.

A comparison of the heights of 500 male adults presenting well-marked pulmonary tuberculosis with the heights of 500 male adults presenting various other affections, revealed a close correspondence. In both groups, the greatest number of cases were found in those five feet six inches in height.

The questions of heredity and contagion were studied with great care. In 23.3 per cent. of cases a definite family history of tuberculosis could be traced; in 5 per cent. more, some doubt existed; in 70 per cent. the family history was good, so far as tuberculosis was concerned. "It seems . . . that we may safely limit the influence of heredity . . . to the production in the tissues of a susceptibility to, or at least a diminished power of resisting the tubercle-bacillus." On rigid scrutiny 6.7 per cent. of the cases could be traced to contagion.

In the vast proportion of cases the tuberculous process began at an apex. In 2.3 per cent. only was it exclusively or especially basal. In 40 per cent. the left, and in 34.3 per cent. the right lung was affected alone or in greater degree, while in 25.7 per cent. both seemed equally affected.

In 40 per cent. of cases the patients could assign no cause for their illness; in 12.8 per cent. the disease was attributed to chill; in 12.4 per cent. to bronchitis. In 5.6 per cent. of cases a history of exposure to inhalations of dust was obtained. In 8.2 per cent. of cases the illness was dated from a previous pleurisy. In 8 per cent., patients attributed the commencement of their illness to hemoptysis. In only 5 per cent. was a close sequence of tuberculosis upon croupous pneumonia ascertainable. Of

the cases below fifteen years of age, 30.5 per cent. had a history of recent measles. In 4.4 per cent. the onset of the disease was distinctly traced to an attack of influenza.

In 1 per cent. there was evidence of concurrent syphilis, and in less than 1 per cent. more a likely history of syphilitic infection. In 1 per cent. there was a history of acute rheumatism; manifestations of subacute and chronic forms of rheumatism were not infrequent. In 7 per cent. there was a history of malarial fever. In one case only was diabetes a precedent condition. Alcoholism was clearly traceable in 1.4 per cent. In 10.5 per cent. laryngeal complications were present; in a further 6 per cent. they were suspected.

Mitral valvular incompetency was present in seven cases; mitral obstruction in three cases; mitral incompetency and regurgitation in six; and pulmonary obstruction in four. Only 1.2 per cent. presented glandular involvement; less than 1 per cent., osseous or articular involvement; and less than 1 per cent., cutaneous involvement; 1 per cent. (all males) suffered from *fistula in ano*.

In an analysis of the results of treatment, 469 cases were considered. These were under observation for not less than six months, and the greater number for a longer time. In 117 cases (24.94 per cent.), there was continuous improvement in symptoms, physical signs, and general conditions for a period of not less than six months, a gain of more than five pounds having been maintained. In 163 cases (34.75 per cent.), the improvement was less decided. In 113 cases (24.1 per cent.), the results were indifferent, the patients ultimately growing worse. Seventy-six cases (16.2 per cent.) did badly, progressing to a fatal termination.

While the conclusions arrived at from the foregoing study are largely in accord with those of other observers, some additional light is thrown upon a subject no phase of which can be considered unimportant. Several points, however, deserve special mention.

The significance of hereditary transmission is shown to be a subordinate one, while there can no longer be any doubt of the contagiousness of pulmonary tuberculosis. A recognition of the accuracy of these propositions, particularly of the second, should lead to the adoption of rigid measures calculated to prevent the extension of a disease transmissible by intimate contact and communication. Sick and well should, as much as possible, be kept apart, and ample provision should be made to render innocuous and to prevent the dissemination of the ejecta and dejecta of the infected. Efforts should be directed to overcome the tendency to the disease in a predisposed subject by guarding the general health with jealous care and by raising the nutritive processes to such a standard of perfection as to render the body-tissues resistant to the invasion of noxious agencies. The intelligent physician of today must recognize that tuberculosis is not only a curable disease, but also a preventable one.

The small proportion of cases in which the tuberculosis appeared as a sequence of croupous pneumonia is a noteworthy observation that carries its own lesson. A larger proportion of cases seemed to be related to antecedent pleurisy. One will also be struck by the small number of cases associated with diabetes.

The large number of cases in young persons in which there was a history of recent measles should constitute sufficient admonition for the precautions to be taken in the convalescence from a disease considered to be among the mildest of the commonest. The old notion of the non-concurrence of pulmonary tuberculosis and valvular disease of the heart receives rational modification. Not only was the association relatively infrequent, but in the cases with valvular disease the course of the pulmonary affection was apparently retarded.

Finally, the results of treatment must be considered as in the highest degree encouraging. As the therapeutic procedures employed are not named, it is reasonable to assume that they were those in current use. The report bears the stamp of a healthy conservatism, and is free from any excess of zeal or enthusiasm that might attach to a special mode of treatment; so that the results recorded may be accepted as the unavoidable conclusions of an impartial study.

THE SENSORY CONDUCTION PATHS IN THE SPINAL CORD.

THE views held by most physiologists in regard to the paths that conduct sense-impressions in the cord have been based upon the classical experiments of BROWN-SÉQUARD, who taught that, soon after entrance at the posterior roots, all sensory impulses, save those of muscular sense, underwent complete decussation, passing up the opposite side. Although supported by a certain amount of clinical evidence, this theory has not been allowed to go unchallenged.

An epitome of the literature of the subject, together with the results of some personal experimental work by DR. F. W. MOTT, has been published in the *Philosophical Transactions* of the Royal Society of London for this year.

MOTT, under the direction of PROFESSOR SCHAEFER, experimented on nine monkeys, cutting through one half of the cord at different levels, and studying carefully the clinical and anatomic consequences. By means of a strictly antiseptic technique he was able to avoid the confusion arising from wound-infection, an evil that has too often vitiated the results of other observers. An analysis of his report shows that, after hemisection of the monkey's cord, conscious sensation and the power of localization usually remain on the non-paralyzed but *not on the paralyzed side.* In testing the sensibility, the use of Schiff's "clamp test" was found to be the most satisfactory. The clip was always removed from the non-paralyzed foot, but when attached to the skin of the paralyzed one the blindfolded animal either paid no attention to it or would scratch the same spot on the foot of the opposite side (Allochiria). The knee-jerk on the side of the lesion was generally abolished for a few days; later it was exaggerated. A few hours after the operation, vasomotor paralysis on the side of the section was manifested, the foot becoming swollen, dark, and distinctly hotter than its fellow; this paralysis was always temporary, passing off in one or two weeks. The surface temperature was at first higher on the side of the paralysis.

There was never any marked paralysis of the muscles invariably associated in movement with those of the opposite side. On an average, at the end of three weeks movements of the hip and knee returned on the paralyzed side; they were usually associated movements of flexion and extension. In some of the cases the motor areas of the cortex were exposed after several weeks and the effects of electric stimulation observed. The block was thus shown to exist even after a very complete return of associated movement.

Microscopic examination of the cord revealed the usual secondary degenerations; there were no crossed degenerations—and there had been no regeneration of nerve-fibers at the site of the lesion. MOTT believes that the direct cerebellar tract has its origin in the nerve-processes of the ganglion-cells of Clarke's vesicular column; and with reference to the antero-lateral tract he differs from both GOWERS and EDINGER in thinking that it is made up of fibers coming from cells of the *same* side.

These experiments prove conclusively that in the monkey the sensory paths do not entirely cross, and in addition make it probable that while painful and thermic sensations may pass up either side of the cord, the sensations of touch and pressure associated with localization, as well as the muscular-sense impressions, pass up chiefly by fibers of the same side. The return of sensation on the paralyzed side may be due to the development of collateral channels for sense, just as there are collateral channels formed for the production of bilateral associated movement.

To explain the peculiar condition of allochiria one may think of the nerve-impulse as being conducted, on account of the hemisection, in some way to the opposite side—and, after ascending the cord, crossing again high up to finally reach the cerebral hemisphere of the same side. Such a sensory impression of course misleads the animal as to the foot irritated, and it will keep up its fruitless attempts at removal until undeceived by visual correction.

These researches of MOTT give results quite in accordance with the experiments of WEISS, HOMAN, and OSAWA, who operated on dogs, and confirm the deductions of HORSLEY and GOTCH from their electric methods of examination. Nothing can as yet be definitely said as to the particular tract made use of by a particular variety of sensory impulse. The pathologic histology of tabes has given some support to the view that the muscular-sense fibers pass up in Goll's columns, and the loss of painful and thermic sensations in syringomyelia suggests the gray matter as the conducting medium for these impressions. On the other hand, we know that the gray matter of different levels is connected by certain ascending internuncial fibers—a fact that makes it probable that the central gray mass in itself does not conduct impulses of any kind very far.

The different theories as to the production of hyperesthesia are most conflicting, and no one of the various suggestions (*e. g.*, hyperemia, edema, removal of inhibitory influences) can be regarded as perfectly satisfactory.

The question, How far are we justified in applying the knowledge experimentally gained of the conduction paths in the spinal cord of monkeys to the physiology of the human cord? is a difficult one, which we shall not attempt to discuss. The cases of hemilesion of the cord in human beings that have been thoroughly worked out clinically and

microscopically are unfortunately few in number, and indeed so far as they go give evidence in favor of the decussation of painful sensations soon after their entrance at the posterior roots. They do not, however, point to any similar decussation of the impressions of tactile sense. We can scarcely expect a satisfactory clearing up of the subject until we possess a much more comprehensive series of cases in which the clinical phenomena studied by unbiased observers have been controlled by subsequent systematic histologic examinations.

DIPHTHERIA AND CROUP.

THE science of bacteriology has already opened a floodway of light upon many obscure problems in the etiology of disease; and evidence is not wanting as to the practical application of the information obtained from this source. While perhaps not yet absolutely proved, there is abundant testimony, clinical and otherwise, pointing to the identity of the two processes, diphtheria and croup. Partly in consequence of early teaching, partly because the evidence is not conclusive, there is still a minority that maintains the individuality of the two affections. One of the most conclusive clinical arguments of their identity is afforded by the fact that in some of the large Continental hospitals cases of croup and diphtheria are placed side by side in the same ward, and the cases of croup do not become infected; while it is not rare for diphtheria to develop in a family in which an apparent case of croup has been present.

The almost general acceptance of the dictum of identity is indicated by the tendency to treat cases of croup as though they were diphtheritic, and the instructions of Boards of Health that cases of croup be reported. FRAENKEL (*Deutsche medicin. Wochenschr.*, No. 24, 1892, p. 564) has added an opportune and valuable contribution to the controversy. The opportunity was afforded him of holding autopsies in four cases, clinically typical instances of croup. In none were subjective or objective evidences of pharyngeal involvement present. All presented hoarseness and marked difficulty in breathing. In two, tracheotomy was performed. The autopsies confirmed the freedom of the pharyngeal structures. In one case the membrane was situated below the glottis. Examination of the membrane present in each case disclosed the presence of the bacillus of diphtheria described by KLEBS and LOEFFLER, the identity of which was absolutely assured by its morphologic appearances, by its behavior in culture, and by its pathogenicity to animals. It is true that the number of cases reported is small, but the evidence adduced is positive and conclusive, and not to be controverted by any negative evidence.

Investigations by MIDDELDORPF and GOLDMAN (*Deutsche medicin. Wochenschr.*, No. 24, p. 570) have disclosed the identity of the pathologic processes in croup and diphtheria. In both there occurs an intense inflammation of the mucous membrane, leading to destruction and desquamation of epithelium. Abundant exudation takes place, with subsequent coagulation and the formation of membrane.

CHOLERA IN EUROPE.

CHOLERA once more threatens Europe. According to well-credited accounts it has invaded European Russia, but its presence elsewhere on the Continent has not been verified. While there is apprehension in this country lest the march of this scourge may continue westward, it can hardly be said that the United States is menaced so long as European commercial ports remain free from the disease. Nevertheless it is the part of prudence to look to our defences and to make every preparation to guard against this insidious enemy.

Sanitary officials abroad are on the alert, and strenuous efforts are being made to interpose barriers to the onward march of the disease; but too much dependence should not be placed on this means of protection. Communication is constant and rapid, and an outbreak of the malady in European ports brings it close to our doors. Fortunately, the points of entrance are limited in number, and to them the greatest attention should be paid.

The report that cholerine, which is prevalent in and about Paris, is a mild form of true cholera has been discredited by an official statement received by Surgeon-General WYMAN. Be this as it may, the large number of cases gives rise to a suspicion that dare not be disregarded.

Vigilant inspection of all arriving vessels should be provided for, and ample preparation for detaining for observation all suspected passengers and for disinfecting effectively the clothing and effects of passengers, and for treating thoroughly the vessels, should be made in advance. Weak places in the

line of our quarantine defences should be made strong and past oversights be corrected. A grave responsibility rests upon the sanitary authorities of maritime ports, and to them the country looks for protection.

REVIEWS.

A JUNIOR COURSE OF PRACTICAL ZOÖLOGY. By A. MILNES MARSHALL, M.D., D.Sc., M.A., F.R.S., Professor in the Victoria University; Beyer Professor of Zoölogy in Owens College, Manchester; Late Fellow of St. John's College, Cambridge. Assisted by C. HERBERT HURST, PH.D., Lecturer in the Victoria University; Demonstrator and Assistant Lecturer in Zoölogy in Owens College, Manchester. Third edition. London: Smith, Elder & Co., 1892.

THIS is the third edition of Professor Marshall's work, the first having appeared in December, 1886, and having been compiled for his classes in Owens College, Manchester, England. The work is now, owing to its usefulness, employed as a text-book in many other quarters.

The title of this justly popular work is misleading, inasmuch as, strictly speaking, the volume does not treat of "Practical Zoölogy," but is rather a guide-book to practical zoötomy, or a manual of animal morphology. In plan, it almost exactly follows Huxley's *Practical Biology*, and is even still nearer T. J. Parker's admirable little treatise on *Zoötomy;* but it is more extensive than either, and consequently correspondingly more useful to the practical student in the morphologic laboratory. Although quite brief, the sections in the introduction on the observations of animals during life, drawing, methods of killing animals, dissections, injection, manipulations of the microscope and reagents, and many other useful hints to the anatomist, are very clear and extremely valuable. Chapters beautifully illustrated by means of the finest woodcuts are devoted to the protozoa, the hydra, the liver-fluke, leech, earthworm, mussel, snail, crayfish, cockroach, lancelet, together with appropriate types from the vertebrate series. We fail to see, however, why Professor Marshall took up the study of the fowl and pigeon after the chapter on the rabbit rather than before it. The fact has its disadvantages, and should be remedied in the next edition. Moreover, we would suggest that a chapter on some appropriate reptilian form be added, as well as one devoted to some typical teleosteon fish. Upon the whole, the volume is remarkably free from mistakes of any kind.

DISEASES OF THE NERVOUS SYSTEM. By JEROME K. BAUDUY, M.D., LL.D., Professor of Diseases of the Mind and Nervous System and of Medical Jurisprudence, Missouri Medical College, St. Louis. Second edition. Philadelphia: J. B. Lippincott Company, 1892.

THE first edition of this work appeared in 1876, and has been out of print a number of years. The present treatise is divided into two volumes, the book now under consideration being Vol. I, although, curiously, the title-page does not convey this information. In the preface, however, the author states that diseases of the brain, cord, and peripheral nerves will be considered in the second volume. The volume under review deals with anemia and hyperemia of the brain and inflammations of its membranes, and the various forms of insanity. The subjects are not considered systematically, but are presented in the form of lectures (nineteen in number) delivered to the students of the Missouri Medical College. The work will doubtless have its widest circulation among Dr. Bauduy's pupils. We cannot help thinking that its influence will be limited, for it sadly lacks the stamp of originality. Many prominent alienists and neurologists are freely quoted. Indeed, whole pages are, at times, presented between quotation marks. Not infrequently, as in the case of transitory insanity, almost the entire article is made up of a quotation. The best authorities are generally quoted, so that a student or general practitioner could learn much from a reading, but to the neurologist there is nothing new in the book.

HOW TO FEEL THE PULSE AND WHAT TO FEEL IN IT. PRACTICAL HINTS FOR BEGINNERS. By WILLIAM EWART, M.B. Cantab., F.R.C.P., Physician to St. George's Hospital, etc. With twelve illustrations. 8vo, pp. xv, 112. New York: William Wood & Co., 1892.

A STUDY of the pulse is at once so interesting and so instructive that the liberally-educated practitioner of medicine cannot afford to be uninformed upon a subject to which really a good deal of importance attaches. As in all else, the information to be gained from a study of the pulse will depend upon the skill of the observer, and skill only comes with experience. The pulse is eminently a practical subject, best taught by actual demonstration. Description, however, may be made useful as a guide, directing ends to be sought, facilitating study, defining technical language, and presenting the accumulated experience of many observers. The little book before us is eminently fitted to fulfil these several indications. Tersely written in clear language, it will prove useful to the student in grasping a subject for the practical application of which the practitioner many times daily finds opportunity. There is one lesson the discriminating reader cannot fail to take away with him, and that is that to be a good clinician he must be a good physiologist. The work concludes with a "Glossary of terms in use at the present time or in the past in connection with the pulse," and a list of the Latin names for the many different kinds of pulse that have been described at one time or another.

ELEMENTS OF MATERIA MEDICA AND THERAPEUTICS. By C. E. ARMAND SEMPLE, B.A., M.B. Cantab., M.R.C.P. London. With 440 illustrations. Pp. xxxii, 480. London: Longmans, Green & Co.; and New York: 15 East 16th Street, 1892.

THIS book will commend itself at once as a practical manual of materia medica and therapeutics. While there exists a multiplicity of truly excellent volumes upon materia medica, the importance of the subject and the constant additions thereto render acceptable any book that will present the matter in a new and agreeable

form. This may be said of the one in question. Its claim for recognition is based upon the peculiarity and simplicity of classification, the comprehensiveness of detail, the multiplicity of illustrations, and the exclusion from its pages of all material not recognized in the 1885 edition of the *British Pharmacopeia* and its Appendix of 1890. Naturally the limitation to those remedies which are officinal forbids the introduction within its pages of many of the more recent drugs which are becoming generally known and employed, but with this exception apparently no efforts have been spared to thoroughly modernize the subject. The American student, however, will find many familiar preparations not mentioned, while their places are taken by preparations as equally unfamiliar. The arrangement adopted is a natural rather than a therapeutic or physiologic one, while the numerous woodcuts lend an additional interest and value to the work.

SOCIETY PROCEEDINGS.

AMERICAN NEUROLOGICAL ASSOCIATION.

Eighteenth Annual Meeting, held in New York, June 22d, 23d and 24th, 1892.

THE President, DR. C. L. DANA, briefly reviewed the progress of the Association since its inception, and made reference to members deceased since the last meeting, paying special tribute to the memory of the late DR. BIRDSALL.

DR. C. A. HERTER, of New York, read a paper entitled "Researches upon the Etiology of Idiopathic Epilepsy." The investigation was originally undertaken with a view to studying the relation of uric-acid excretion to the epileptic paroxysm. It could not be determined that the seizures of grand mal were determined by an excessive accumulation of uric acid in the blood. Some observations, however, of another kind, had suggested the possibility of a causal relationship, in some cases, between putrefactive processes in the intestines and epileptic seizures. Certain substances in the urine, namely, the ethereal sulphates, had been shown to be derived from putrefaction in the intestine and the extent to which such putrefaction occurred might be inferred from the quantity of these substances in the urine. Thirty-one cases of epilepsy were thus studied. Twenty-nine presented attacks of grand mal. In rare instances only, did the excretion of uric acid before the seizure vary from the limits of health. The urine passed after a seizure, however, generally presented a higher uric-acid ratio than the urine before or about the time of the seizure. In cases of petit mal a continuously high uric-acid excretion had been observed and appeared in some way to be related to the cause of the seizures. Of the twenty-nine cases of grand mal, twenty-one presented unmistakable evidence of excessive intestinal putrefaction. There appeared to be a general correspondence between the seizures and the degree of intestinal putrefaction as gauged by the analysis of the urine.

DR. E. D. FISHER stated that the clinical facts tallied with the deductions arrived at. Given an unstable cortex, there is no reason why the chemical products of intestinal decomposition might not act as the irritating cause of the seizure.

DR. WHARTON SINKLER cited a case illustrative of the action of putrefactive changes in inducing epileptic attacks. The seizures occurred every one or two months, but they were frequently warded off by active purgation.

DR. H. A. TOMLINSON emphasized the fact that keeping the bowels open and seeing to the proper exercise of the epileptic insured fewer convulsions and a less uncomfortable existence.

DR. HERTER expressed the view that the substances that he had been isolating did not act as a cause by themselves, but as irritants upon a predisposition.

DR. J. W. PUTNAM, of Buffalo, read a paper entitled "Sleep Movements of Epilepsy." He related the case of a patient who had a convulsion almost every evening. While waiting to observe an attack, he had several times noticed that the patient restlessly tossed the left arm, while the right was quiet. No movements of the legs were observed; there were no convulsions on the night of the observation, but the mother of the patient stated that during attacks the patient always turned on her left side. The thought suggested itself that a series of observations of epileptics during sleep might show similar movements, which might be of a localizing value.

DR. ISAAC OTT, of Easton, read a paper on "The Seat of Absinthe Epilepsy." He reviewed the various experiments that had been made in localizing convulsive movements, dwelling especially upon the absinthe tests.

It has been found that after injection into the jugular vein of two drops of essence of absinthe, the facial muscles were involved in a single clonic spasm, passing into a state of tremulous tonic spasm. This order of convulsion passed rapidly down the body until the tonic spasm in the limbs was extremely marked. After a short period the tonic spasms gave way to a long series of clonic twitches. Accompanying these convulsive phenomena there was profuse salivation and sometimes escape of urine, while, in cases in which narcosis had not been employed, unconsciousness and coma were early symptoms. The effect upon the cord was also tested by means of the electric method, using both the galvometer and the electrometer. The results showed that the employment of absinthe gave maximal electromotive effects in the sciatic nerve, through the overwhelming discharge of the highest cortical centers. It was also observed that absinthe caused an additional electric excitation of the centers, producing more energy. Absinthe not only produced typical epilepsy in animals, but also in man. That the convulsions were not due to circulatory changes is generally admitted. The theory of spinal origin has been exploded. The evidence indicates that the seat of origin of tonic and clonic movements in epilepsy is in the cortex, and their expression takes place mainly by means of ganglia seated in the pons. The word cortico-pontal might express the origin of convulsive epilepsy due to absinthe.

DR. HENRY R. STEDMAN, of Boston, read a paper entitled "Separate Provision for Epileptics, both Public and Private," entering a plea for the exclusive care of epileptics in special establishments, on the colony plan, throughout the country. That this is practicable, the colonies for epileptics in other countries, particularly in Germany, have demonstrated. The deplorable condition of these unfortunates in almshouses, in which there are large numbers in most of the States, cannot be too

severely condemned. The usual practice of caring for these patients with the insane in lunatic asylums is a great disadvantage to both classes.

DR. BULLARD said that in Massachusetts steps had already been taken to establish suitable special institutions for the care of epileptics. A bill had been prepared by a special committee and presented to the proper authorities.

DR. FREDERICK PETERSON urged the necessity for energetic support of the measures already taken, and added that if his hopes were realized, 120,000 epileptics would have opportunity for instruction and for leading useful lives.

DR. FISHER said he hoped the movement would meet with every success. Treatment does but little good. What is needed is an opportunity for work.

DR. WM. M. LESZYNSKY expressed the view that it would be undesirable to associate cases of chronic epileptic insanity with ordinary epileptics.

DR. TOMLINSON stated that none of the institutions for the insane in which epileptics are kept is suitably equipped to care for them. It was necessary that epileptics should receive special attention. They often evince a tendency to eat voraciously. Constipation is frequent among them, and the auto-infection thus produced increases the frequency of the seizures. If separate treatment, occupation, and proper diet could be provided, epileptics would doubtless lead more comfortable, and, in many cases, really useful lives.

DR. SACHS expressed himself in favor of provision by the State for epileptics, but thought that much must be done by private endeavors. Many of the younger epileptics had no opportunity for proper education. For these there should be private institutions in which distinct educational advantages should be afforded.

The PRESIDENT stated that, after investigation, he does not believe that there should be State provision for epileptics, at least not at present. There is now an enormous number of defective institutions under political influence. If there were added 15,000 epileptics to the 15,000 insane, the condition of the former would, by no means, be benefited. While the institutions for which Dr. Stedman pleaded are undoubtedly needed, efforts should be made to interest private citizens in their support.

On motion of DR. STEDMAN the following resolution was adopted: "That it is the unanimous sense of the American Neurological Association that the proper care of the epileptic class, so long delayed, be urged upon the public, upon State authorities, and especially upon all interested in the care of the sick and defective poor, whereby they may be relieved from asylums and almshouses, and may receive the required care in such separate establishments as their deplorable situations demand."

DR. E. C. SPITZKA, of New York, read a paper on "A New Symptom Indicating Combined Cerebellar and Spinal Incoördination." He reported the case of a child whose attitude and appearance were characteristic of that form of pseudo-hypertrophic paralysis in which the atrophy of the arms markedly antedated wasting in the lower extremities. Whether dressed or undressed, under examination and observation or not, the patient had a habit, with his right hand, the thumb and fingers flexed, of making a sudden motion toward the nose; at the same time there was a straightening in his attitude as if all the muscles involved in maintaining the erect posture were in action. A peculiar expression would cross his face, the head and eyes being turned toward the approaching finger. The child had also imperative conceptions, and a fear of going under a certain tree, a terror, late in the day, of a Newfoundland dog, for which at other times he showed great affection. He had also a terror of the stairs, and even on a level he had an impression as of a yawning precipice. The mother stated that three members of her husband's family were in insane asylums—a brother, a sister, a first cousin, and the grandfather. The uncle and cousin had exhibited exactly the same motion of the hands. The father of the child had some slight ataxia in the hands.

Dr. Spitzka related that he had seen four other patients who presented similar strange automatic movements; in two cases these were bilateral and limited to the arms; in the third they were associated with salaam movements of the head and neck; in the fourth, there was a tendency to a hop-skip-and-jump action. The fourth case was the only one in which there would have been any doubt as to the interpretation of the symptoms had it not been for the bad family history. The patient presented a movement strongly resembling that of the first patient, exceeding it, however, as regarded the turning of the head and neck; the index finger alone was raised and slightly curved, and the patient would start two or three times a minute to imitate the motion that one would make in saying, "I hear a noise there." There was a fixed hallucination of sound, located, the patient said, exactly six inches in an accurately defined direction from the right parietal bos. The patient eventually died of diarrhea, and an autopsy was obtained. No structural disease either of the cord or brain could be found. There was a heterotopia parallel with the claustrum in the region corresponding with the posterior slope of the island of Reil on the left side, and some peculiarities of the gyri that were regarded as abnormal. The convolutions were asymmetrical and atypical.

DR. B. SACHS, of New York, presented "A Further Contribution to the Pathology of Arrested Cerebral Development." He dwelt upon a small group of cases that run in families; the children appear to do well until between the fifth to the eighth month, when a retrograde movement sets in. The cerebral functions, sensory and motor, gradually become impaired. The child soon becomes idiotic, blind, and more or less paretic, death taking place from marasmus. The case reported occurred in a sister of the child whose brain had been reported upon five years before. The child when first seen was thirteen months old. It was born at full term, a perfectly healthy infant, was nursed at the breast, and had appeared to be developing finely until the age of eight months, but from that time on there had been steady retrogression. Close examination showed that the child could not hold up its head; nor could it sit up unless supported; it had no perception of light; the pupillary light-reflex was gone. There was slight sense of hearing, but the child could not distinguish between sounds. There was a spastic condition of the upper and lower extremities. There were no spontaneous movements of any sort, the child sitting listlessly on the

nurse's lap. The knee-jerks on both sides were distinctly exaggerated; no ankle-clonus was obtainable; the plantar reflexes were also increased. The resemblance to the first child was very close in every respect, except that the paresis was more spastic. The condition grew steadily worse, and the child died of marasmus at the age of twenty months. A week before death there had been considerable fever and several convulsive seizures. The autopsy was performed twenty-two hours after death. Most careful examination of all the organs, and of the larger glands failed to detect evidence of syphilis. The skull was symmetrical, of good size, but was unusually thin; the fontanels were closed, but still transparent. The dura was adherent to the skull, so that the brain had to be removed with the calvarium. As in the case of the first child, the brain was firm to the touch, almost as hard as a brain that had been in Müller's fluid for some weeks. The pia could be easily detached, and the cortex, though pale, presented no unusual appearances. The cord presented no abnormal conditions. Very careful microscopic studies of sections of the ganglia, pons, medulla, and cord were made. Marked changes, identical with those present in the first case, were found in all parts of the cortex. In all of the sections examined, not a single normal pyramidal cell could be discovered. The cell-bodies were altered either in shape or in general appearance; the cell-nuclei and the nucleoli were distinct enough, but were surrounded by an altered cell-body, which did not properly take the ordinary strain. The neuroglia cells appeared somewhat increased and the tissue rather dense. The bloodvessels were present in at least the usual proportion, most of them being filled with blood, but there was no sign of any active inflammatory condition. The condition appeared to be a true *agenesis corticalis*.

DR. SACHS and DR. A. G. GERSTER presented a "Report upon the Surgical Treatment of Epilepsy." The cases operated upon were selected with considerable care. They were either of distinctly traumatic origin or such in which a strictly localized convulsion pointed to a limited focus of disease. Cases of general epilepsy of non-trumatic origin were not subjected to operation. In regard to the determination of the brain areas to be operated upon, it was the custom to map out upon the skull with the greatest care in advance of the operation the exact site of the various divisions of the motor areas. In most cases this is quite unnecessary, as the application of the faradic current to the dura would help to localize centers much more accurately than any of the customary rules. While this method will be found entirely satisfactory in cases of ordinary brain-lesion, the morbid brain, as in cases of tumor or in cases in which the brain-tissue had been seriously altered by disease, might not respond as promptly to the current. In such cases the older method of determining the areas would have to be resorted to. The first and most notable result of the operations was that not a single decided cure could be claimed. In several of the cases, there had been marked amelioration immediately after the operation; in some the improvement had lasted a few months, but in every case the attacks recurred after the lapse of several months or less. Operative procedure accomplishes so little because the cases come under notice after the epilepsy has been established for many years. It is now generally conceded that though a focus of disease is the actual cause of the epilepsy, this epilepsy does not as a rule manifest itself until widespread changes have appeared throughout the entire brain. The time that elapsed between the infliction of the initial lesion and the development of these secondary changes corresponds quite accurately with the period of time between the traumatism or the initial disease and the development of the epilepsy. The excision of the cortical tissue after the establishment of epilepsy is of questionable merit. The only hope from surgery is in the prompt interference in all cases of traumatism to the skull, to remove the focus of disease before secondary changes have been set up.

DR. G. J. PRESTON, of Baltimore, read a paper entitled "Some Contributions to the Muscular Sense." The following is a summary of his deductions: The posture-sense is the result of afferent impulses derived from muscles, tendons, articulations and their coverings, and bones. It is independent of and separable from general tactile sensibility, and can possibly be distinguished from the other members of its class, as the pressure-sense, for example. The course of these impulses through the cord is almost certainly by means of the posterior columns. They probably pass into the corpus restiforme and the cerebellum. In all probability they pass through the anterior portion of the posterior third of the posterior limb of the internal capsule, occupying an intermediate position between the motor and sensory fibers in this region. Without positive data on either side, it seems most probable that the center for the posture-sense is located in one of the cell-layers of the motor cortex.

DR. H. H. DONALDSON, of Worcester, read a paper "On the Extent of the Visual Area of the Cortex in Man, as Deduced from a Study of Laura Bridgman's Brain." In Laura Bridgman's case vision had been lost in the left eye at twelve years of age. When first examined the right cortex was found to be thinner than the left. The posterior portions of both hemispheres being compared, it was found that on the right side the cortex was thinner over an area that corresponded pretty nearly with that described as representing the visual area.

DR. DONALDSON also read a paper on "The Criminal Brain; Illustrated by the Brain of a Murderer." Examination of the brain of a murderer of undoubtedly criminal characteristics showed that it did not present the confluent fissures described by Benedict as characteristic of criminal brains. It is maintained that many of Benedict's so-called characteristics are to be found in the normal brain. It has been determined by comparison that there are more confluences in normal brains than in those of criminals. If increased fissuration is a criminal characteristic, other things being equal, this would imply an increase of gray matter; therefore, low-type brains might be said to have proportionately a larger amount of gray matter. Undoubtedly, the criminal brain could be picked out of a mixed lot, but only by virtue of general characteristics; and there could be no certainty that all criminal brains could be thus selected. The characteristics of degeneracy are such as were to be found in the rest of the body, and are not sufficiently marked to be expressed in a systematic manner.

DR. COLLINS related that in holding an autopsy on a murderer who had lost his life in attempting to take that of a New York financier, he had found really remarkable structural changes; whether these were the result of retrograde changes during life or represented an inherent structural absence from the beginning he could not say. The fissure of Rolando was very shallow, the gray matter thinner than normal. The ascending parietal convolution was small and the entire left hemisphere gave an idea of abnormal changes of conformation.

DR. CHARLES K. MILLS expressed the view that there are many misconceptions on the part of those who criticised the observers who had reported aberrations and irregularities in the brains of criminals. No one believes that all criminals present a brain-anatomy that would enable them to be ranged under a special type. Criminals belong to very different classes. A criminal type of brain could be expected from those who were victims of a bad heredity or very early arrest. Paranoiacs, criminals, idiots, imbeciles, those generally who were victims of arrested or abortive development, would probably present brain-abnormalities of a gross kind.

DR. KNAPP stated that it is as vague to speak of a criminal brain as it would be to speak of an insane brain, classing together indiscriminately mania, melancholia, paranoia, and general paralysis.

DR. F. X. DERCUM, of Philadelphia, presented a "Description of a Chinese Brain." The greatest circumference of the skull was twenty-one inches, or 55.3 cm. The naso-occipital arc was 32 cm; the naso-bregmatic arc, 13; the bregma-lambdoidal arc, 12; the lambdo-occipital, 7. The brain, without the dura and without draining, weighed forty-seven ounces. It was anemic, but not edematous. In the right cerebral hemisphere the fissure of Sylvius was very short, and turned sharply up, ending at a point just vertically below the lower extremity of the inferior retrocentral fissure. The fissure of Rolando was normal; it did not quite reach the longitudinal fissure above. The central convolutions were narrow, measuring about 2 cm. in width. The first and second frontal fissures were distinctly outlined, and did not run into other fissures. The inferior and superior precentral fissures were distinct and normal. Anteriorly the interparietal fissure connected superficially with the retrocentral, but was separated by a low, bridging convolution. It did not run into the occipital lobe, but curved up and dipped into the longitudinal fissure. The anterior occipital fissure was plainly marked. The parieto-occipital fissure was deep and wide, and on opening it a small convolution lay at the bottom. There was no inferior *pli de passage*. The first temporal fissure ran into the fissure of Sylvius. In the left hemisphere the fissure of Sylvius was normal. The first temporal fissure ran into it, as did the fissure of Rolando. The fissure of Rolando was marked, and ran into the fissure of Sylvius. The first and second frontal, and the precentral fissures were normal. The interparietal fissure was marked, and ran into the occipital lobe. The parieto-occipital fissure resembled that of the right hemisphere. The anterior occipital fissure was marked. There was no inferior *pli de passage*. The first temporal fissure ran into the fissure of Sylvius, and was broken in two places.

In all of the brains of Chinese so far examined an unusual tendency to transverse or perpendicular fissuration has been present. There was also unusual sinuosity of the fissures. Of the gross peculiarities, there was a marked obliquity or eversion of the basal surface of the frontal lobe. In both of two specimens previously described complexity was given to the frontal lobes by the appearance of well-marked medi-frontal elements. In the present specimen an added frontal fissure was present in the left lobe, but was comparatively short. In the right lobe only traces of it were found. In all of the specimens the cuneus and the occipital lobe were rather small. Owing, probably, to the unusual sinuosity of some of the fissures, together with the excessive transverse fissuration, these brains have a physiognomy, as it were, of their own. In general appearance they were certainly different from the average white brain, and very different from the brain of the negro.

DR. JAMES HENDRIE LLOYD, of Philadelphia, read a paper on "The Association of Hysterical Trembling and Anorexia Nervosa, with Report of a Case." The case was that of a young woman who had been first observed at a remote farm-house in Pennsylvania. She had been ill for two years. She presented a peculiar rhythmic, constant tremor, which was not paralysis agitans. The tremor occurred in waves of exacerbation and opisthotonic spasms every minute or so. The patient had hysterogenic zones, pressure over which would induce a spasm. She also presented the condition described by Gull as anorexia nervosa. By a mistake, a large dose of ordinary saltpeter had been given, instead of sulphate of magnesium. While no harm had directly resulted from this error, the mental disturbance had been so great that regurgitation of food had set in and had become the most pronounced complication in the case. The patient was found lying upon her side, with cloths under her chin to catch the regurgitated material. She was emaciated to the last degree. There was no atrophy, but simply inanition. This condition was followed by true hysterical retention of urine, lasting sometimes for two days. Upon removal to a private hospital, the tremor had greatly subsided and regurgitation of food had entirely ceased.

DR. RIGGS cited the case of a woman under his care believed to be suffering from hysterical tremor. The attack came on only during the morning hours. No stigmata could be found. There was persistent nausea and continuous headache. Under the usual therapeutic measures the patient had steadily improved.

DR. WEBBER stated that these patients do not really swallow—at least, the food does not pass into the stomach. If food were made to pass into the stomach through a tube the vomiting ceased. The symptoms ceased, and the ability to take food returned, if the patients were removed from home for a time.

DR. PRESTON stated that it is necessary to distinguish between hysterical tremor and the *tremblement nervosæ* of Charcot. There is an hysterical tremor due to distinct cortical inhibition, an absence of stimuli sufficiently close together to insure summation, and hence there is a series of movements resulting in tremor. In a case of hysterical anorexia, with nervous tremblings at intervals, the patient had lost 50 per cent. of body-weight.

DR. MILLS stated that he had seen Dr. Lloyd's case

and considered the diagnosis correct. It is important to determine that the tremor or abnormal movements are not purely hysterical or associated with melancholia or some organic disturbance. A diagnosis of the hysterical character of the tremor is to be made chiefly from the association of other hysterical manifestations. As to the prognosis, many of such cases would outlast their medical observers.

DR. SACHS related the case of a young woman who absolutely refused to take food on the plea that she could not swallow. Efforts were made to administer food by force. She would keep large quantities in her gullet and then go into a corner of the room and eject it. When fed, she would gag and regurgitate a little, but it was not believed that she emptied the contents of the stomach entirely, and it was agreed that it was not true vomiting. Male hysterical patients are much more difficult to handle than female patients. The majority of these patients must swallow. The best proof that they are not without food lay in the fact that they increase in weight. The hystero-epileptic regimen has been followed in these cases by brilliant results. Few cases of hysterical anorexia will resist cold water applied under considerable pressure.

DR. C. K. MILLS read a paper entitled "Folie à Deux, with Remarks on Similar Types of Insanity." He reported the cases of two sisters, the eldest thirty-two years of age, the other less than two years younger. The father was a hard-drinking, quarrelsome man. The first patient had been deranged for three or four years. She had complained of feelings as of something growing in her abdomen, of sickness of the stomach, bloody passages, chills, and other unpleasant sensations. For a long time she had been annoyed by strange voices. She was tormented by others, both at her work and at home, and was made to say very ridiculous things. She apparently had hallucinations of several senses. A stench of blood came up through her throat; at times she was grasped by a hand or hands. Men would appear before her; sometimes they would get on their knees and solicit her. She was full of sexual delusions with reference to men and their designs upon her. The heads of men would appear before her at her work. When she did not see them, she would sometimes feel them or hear them; often she heard their voices talking with her after midnight, saying all sorts of filthy things.

In the second patient the mental disturbance had apparently come on a few weeks after that of the first. The delusions of the first had to some extent, been imposed or communicated to the second. Besides having various physical symptoms, the second patient, who seemed to be weaker both mentally and physically than the other, told the most filthy stories. She said that she knew the men that were abusing her. These patients had evidently become a nuisance both at their home and in the neighborhood. Some of the men they had accused had been threatened by them. They appeared to believe firmly in what they said, and yet at times to appreciate that something was mentally wrong. They eventually went quietly and without resistance to a hospital for the insane, thinking apparently that they might be able to get their troubles straightened after they got there. They presented, as is not unusual, a blending of the characteristics of the three forms of folie à deux—that is, of the imposed insanity, the simultaneous insanity, and the communicated insanity. The influence of heredity was decided; the delusions were persecutory.

DR. MILLS reported "A Case of Rapidly Fatal Motor and Sensory Paralysis, with Autopsy, showing Acute Myelitis Mainly of the Dorsal Cord." The patient, a man thirty-seven years old, with an uncertain specific history, six months before coming under observation had had a large carbuncle between the shoulders. For months he had shown some tendency to drag his feet. For two weeks he had had pain and soreness almost in the line of the right nipple, which extended later into the armpits and down the inner side of the arm. Four days before he was first seen, he complained of severe pain in the loins. On the next day, he was barely able to walk, and in thirty-six hours he could not stand. Twenty-four hours later he was completely paralyzed in both lower extremities, and showed also total loss of sensation as high as the nipples. He had incontinence of urine and feces; the knee-jerks, the muscle-jerks, and the cutaneous reflexes were abolished. This extreme paralysis was fully developed three days after the first symptom of motor impairment became marked. The temperature rose rapidly to 104° or 105°, with a corresponding increase in the frequency of pulse and respiration. Ten days after the onset, the man died. From the fourth to the eighth day his condition did not change much, except that the line of insensibility advanced a little higher and ecchymotic areas appeared on the thighs. The motor paralysis, reflexes, etc., made no improvement. On the ninth day he complained of severe paroxysmal pain in the upper arms. Mucus collected in the larynx, the voice became weak, the surface of the body cold, with some delirium and at times a marked disposition to somnolence. From the ninth day the man kept both forearms flexed and rested them on his abdomen and chest, the little and ring fingers being also flexed. At the autopsy, the vessels of the spinal pia were greatly distended with blood. On section, the periphery of the cervical cord was of good consistence, but the center was much softened. As the sections were made lower down, the transverse area of the softening increased, until in the dorsal region only a shell of solid tissue surrounded a creamy mass. The softening grew less again in the lumbar region. Below the right groin was a swelling containing broken-down glands and pus. The other organs and parts were found to be normal. Microscopic examination showed the nervous tissue in the dorsal region to be almost entirely destroyed. The bloodvessels were distended and there were many scattered hemorrhages. Hemorrhages were also present in the pia and in some of the peripheral nerve-roots. The upper part of the cervical region was but little affected, the lumbar much less than the dorsal. The case was unquestionably one of acute, rapidly spreading myelitis.

DR. SACHS stated that he had seen several cases in which acute myelitis led primarily to death. In the case reported, the analogy with acute tuberculous myelitis suggested itself. Dr. Sachs had seen three cases with such characteristics, in all of which tubercle-bacilli were discovered in the broken-down cord. In cases in which there has been some chronic disease of the spinal cord before exposure to tuberculous infection, the cord is very prone to break down.

DR. PRESTON agreed with the opinion that the case could be considered as one of hemorrhagic myelitis, producing distinct arterial sclerosis. He had seen a case of the kind apparently due to a very limited local tuberculosis of a vertebra. The vertebra was not broken down, and the bone not decidedly involved. There were tuberculous nodules in the coverings of the cord at the point where the myelitis began.

DR. MILLS and DR. JOHN B. DEAVER reported "A Case in which Exploratory Trephining and Ligation of the Vertebral Artery were Performed, Autopsy showing Gliomatosis of the Cerebellum, Pons, and Oblongata, with Hydrocephalus and Hydrorrhachis; Opening in the Skull from Continued Pressure." The patient was a boy, eleven years of age, who, in December, 1889, had commenced to complain of pain in the head and some stiffness of the neck. To this were slowly added failure of sight, attacks of nausea, occasional paroxysms of violence or excitement, strabismus, staggering in walking—a little more to the left than to the right—a feeling of dizziness described as "going over," and shortness of breath. Before the operation, double optic neuritis in an advanced stage was present. Hearing and taste were not impaired. There was no motor paralysis, no disturbance of common sensibility, and no nystagmus. On examination, a pulsating tumor was found in the occipital region, slightly protruding through a small opening in the skull to the left of the occipital protuberance. A distinct thrill and bruit seemed to be present. Three scars were noted on the posterior aspect of the head, one just above and to the right of the opening.

A tremor was felt resembling that made by an arteriovenous aneurism. Pressure upon the carotid arteries lessened the pulsation and bruit. The opening in the skull was enlarged, so as to examine the supposed aneurism, which appeared to be in the line of the lateral sinus, but when this was done the character of the swelling was too uncertain to go further. An exploring needle was introduced; on its withdrawal there was considerable bleeding, only arrested by long-continued pressure. Subsequently the left vertebral artery was ligated, but without beneficial results. After the operation, the pupil on the side corresponding to the cicatrix was contracted. The patient slowly grew weaker, and died several months after the operation. At the autopsy a gelatinous mass was found occupying much of the fourth ventricle, reaching from or into the middle lobe of the cerebellum and both cerebellar hemispheres. The ventricles of the brain and their horns were enormously dilated, and at several places at the base rupture had almost taken place into the cranial cavity. When the spinal cord was severed from the medulla oblongata, the central spinal canal was found to be one-sixth of an inch in diameter, and from it much fluid escaped. The chief points of interest were with reference to the diagnosis from aneurism, the mechanism of the process by which the opening in the skull resulted, and the production of the hydrocephalus and hydrorrhachis.

DR. L. C. GRAY, of New York, reported "A Case of Huntington's Chorea; also one of Congenital Huntington's Chorea, the First on Record." The first case was in a man in whose family the disease had manifested itself for many generations. The movements and progressive muscular tremors had appeared when the patient had reached the age of forty-five years. The swaying and dancing movements were not considered those of chorea. The second case was in a child, and was thought to be one of congenital Huntington's chorea. There had been no similar trouble in other members of the family and the general history was negative. The choreic movements had been noticed immediately after birth.

DR. J. H. LLOYD expressed the view that so-called Huntington's chorea, though clinically similar to ordinary chorea, is dependent upon a different pathology. Mental failure is usually associated with adult chorea.

DR. SINKLER stated that the case presented differed from ordinary chorea, and had probably begun as spinal disease. It was much like so-called spinal chorea.

DR. COLLINS reported having observed the case of a child of eleven in whom the movements, which dated from birth, were more characteristic than in the case presented, in whom the lesion was probably one of the medullary areas, the choreic movements being associated with the lack of development in these areas.

The PRESIDENT presented a case of hereditary chorea in a Scotchman in whose family the disease had appeared for four or five generations.

DR. PHILIP COOMBS KNAPP, of Boston, read a paper on "Traumatic Nervous Affections." He presented a summary of ninety cases. Pain in the back was present in fifty-six. Five cases were due to direct injury to the cord, resulting in paraplegia. In four cases, there were symptoms of insidious onset referable to the cord: paresis, vesical disturbances, and a slight spastic condition; the lesions were thought to be chiefly in the lateral columns. Systemic diseases, such as tabes or spinal muscular atrophy, were rare. Thirteen cases were regarded as of more distinctly cerebral origin. In some cases the symptoms indicated a focal lesion, hemorrhage, fracture, or meningitis. Twelve cases were believed to have an organic basis, a diffuse sclerosis of the cerebral nervous system. Four of these had terminated fatally. Four others were thought to belong to this class, but they were classified as doubtful. Twenty-six cases were classed as neurasthenia. Seventeen cases were classified as hysteria. Most of these also presented symptoms of neurasthenia. Pure hysteria was rare. Successful simulation was believed to be extremely rare. The prognosis depends upon the form of disease.

DR. E. C. SPITZKA, of New York, made some remarks on "The Treatment of Syphilitic Nervous Affections." He stated that empirically, the more rapidly a syphilitic lesion of the central nervous system is developed, the more rapidly fatal or radically curable it is. An established sclerosis of non-syphilitic origin will be as readily affected by the iodides or mercury as one of syphilitic origin. The later the outbreak of nervous sequelæ, in a case of paretic dementia of syphilitic origin, the less useful the iodides and the more useful are mercurial preparations and the associated baths. An interrupted plan of treatment covering a long period of time is more applicable to late cases than the energetic single course.

DR. THEODORE H. KELLOGG, of Flushing, read a paper on "The Toxic Origin of Insanity." He stated that it is established that a considerable percentage of all mental disorders have a toxic etiology. Whenever a

poison entered the human system, and through its presence directly or indirectly caused prolonged derangement of the mental functions, the insanity may be considered toxic. The exciting cause will be most active in cases having a native instability of nervous centers. The toxic agent may be vegetable, animal, or mineral. It may be generated as an organic virus in the bodies of others, or it may originate through metabolic tissue-changes in the patient himself, as in the auto-intoxications. It may gain access to the system through the alimentary canal, by the respiratory tract, or through the cutaneous surface, and may act on the cerebro-spinal centers or the sympathetic nervous system by direct affinity, or through pathologic changes induced in the blood, or in the internal organs.

DR. TOMLINSON contended that a toxic influence could not produce insanity of itself, in the absence of a preëxisting instability of the nervous organization, inherited or acquired. Insanity resulting from the misuse of narcotics and alcohol is to be considered as a manifestation of defective nervous organization, exaggerated by the toxic influence these substances exert upon the organism. In auto-infection the same conditions must necessarily exist, else auto-infection would be a more common cause of insanity.

DR. H. A. TOMLINSON, of St. Peter, presented "A Study of the Sensory and Sensory-motor Disturbances Associated with Insanity, from a Biological and Physiological Standpoint." For convenience of study, he arranged the sensory and motor disturbances associated with insanity as follows: Sensory—Disturbance of general sensation, including anesthesia, analgesia, paresthesia, and disturbed muscular sense; disturbance of special senses, including auditory, visual, olfactory, gustatory, and tactual hallucination; illusions, manifested by associated perversions, and lastly visceral hallucinations. Motor disturbance—Tremor, local or general; automatic associated movements; paresis and paralysis, involving special muscular groups or general muscular function; vasomotor disturbance, spasm, and convulsion. He summarized the result of his studies as follows: The application of the theory of evolution to the study of the development of the nervous system, and the normal manifestation of its activities, furnishes the best and most satisfactory basis for the study of the hereditary and acquired imperfections in its structure, with the resulting abnormal manifestation of functional activity, both sensory and motor, as well as the influence of the environment of the individual in determining the nature of the perversion. He expressed the opinion that the future progress in the study of insanity and its associated disturbances, especially its prevention and cure, would depend upon a study of biology and physiology, rather than pathology.

DR. THOMAS J. MAYS, of Philadelphia, read a paper entitled "Pulmonary Phthisis in its Relation to Insanity and to Other Neuroses." [See THE MEDICAL NEWS, July 16, 189?, p. 57.]

DR. J. J. PUTNAM, of Boston, reported "A Case of Akinesia Algera." The patient was a middle-aged man, who belonged to a family of nervous invalids. His trouble had existed since childhood and had gradually increased in intensity. The most conspicuous symptom was excessive pain immediately following the use of the muscles. There was no sign of any trophic changes. The man was well formed, had a delicate skin, and presented no other symptom. There was no tenderness.

DR. J. J. PUTNAM also read a paper entitled "Cephalic Tetanus." He reported a case in which the patient, after having five teeth filled, had been seized with stiffness of one side of the face and neck, followed by spasms so severe that the teeth were ground together; the spasm was continuous. The temperature was 101° F. After some six or eight weeks the symptoms passed away, but as they abated the opposite side became involved, although in a less degree.

NEWS ITEMS.

Professor v. Helmholtz, of Berlin, has been elected a member of the French Academy of Sciences.

Professor His, of Leipsic, has been elected a foreign member of the Stockholm Academy of Sciences.

Biermer, the distinguished German clinician, died recently at Breslau, sixty-five years old. It was he that announced pernicious anemia as a distinct disease.

Henry A. Riley, A. B., Ll.B., a frequent contributor to medico-legal literature, died of heart-disease in New York on June 9.

Dr. Julian J. Chisolm, LL.D.—At the recent Commencement of South Carolina College, at Columbia, S. C., the honorary degree of Doctor of Laws was conferred upon Dr. Julian J. Chisolm, of Baltimore.

Professor Du Bois-Reymond, of Berlin, has been elected a member of the Hetaireia Epistemonidiæ of Athens, of the Royal Scientific Society of Edinburgh, of the National Academy of Sciences of the United States, and of the Royal Belgian Academy.

The Cartwright Prize of the Alumni Association of the College of Physicians and Surgeons of New York, amounting to $500, will be awarded in June, 1893, for the best essay upon any subject connected with the Science of Medicine. An essay must contain the results of original investigation, and must be the work of a single author. Essays in competition must be sent to the Secretary, Dr. T. M. Cheeseman, 46 East 29th Street, New York, on or before April 1, 1893.

Dr. G. T. Lewis.—At a meeting of the Staff of Wills Hospital, held July 14, 1892, the following preamble and resolutions were adopted:

Whereas it has pleased God to take from the sphere of his earthly calling our brother and colleague, George Thomas Lewis, an Assistant Surgeon of this Hospital, it is

Resolved, That we place upon record our appreciation of his devotion to his duties in this house, of his high sense of honor, and of a culture beyond common.

Resolved, That we offer our deepest sympathy to the family of our late colleague, and that a copy of these resolutions be published in the medical and daily journals.